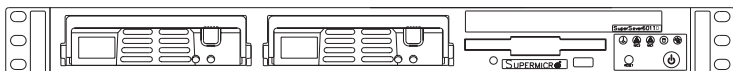# SUPER●®

SUPERSERVER 6011D

USER'S MANUAL

1.0a

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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SuperServer 6011D. Installation and maintainance should be performed by experienced technicians only.

The SuperServer 6011D is a high-end dual processor 1U rackmount server based on the SC810 1U rackmount server chassis and the P3TDDR, a dual processor motherboard that supports single or dual Intel Pentium® III FCPGA 500 MHz to 1.40 GHz and faster processors with a 512K L2 cache and single or dual low power Pentium® III processors at front side bus speeds of 133 and 100 MHz and up to 4 GB PC266/200 SDRAM. CPU watchdog capability is also supported.

Manual Organization

Chapter 1: Introduction

The first chapter provides a checklist of the main components included with the server system and describes the main features of the SUPER P3TDDR mainboard and the SC810 chassis, which make up the SuperServer 6011D.

Chapter 2: Server Installation

This chapter describes the steps necessary to install the SuperServer 6011D into a rack and check out the server configuration prior to powering up the system. If your server was ordered without processor and memory components, this chapter will refer you to the appropriate sections of the manual for their installation.

Chapter 3: System Interface

Refer here for details on the system interface, which includes the functions and information provided by the control panel on the chassis as well as other LEDs located throughout the system.

Chapter 4: System Safety

You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed when installing and servicing the SuperServer 6011D.

Chapter 5: Advanced Motherboard Setup

Chapter 5 provides detailed information on the P3TDDR motherboard, including the locations and functions of connectors, headers, jumpers, DIP switches and IRQs. Refer to this chapter when adding or removing processors or main memory and when reconfiguring the motherboard.

Chapter 6: Advanced Chassis Setup

Refer to Chapter 6 for detailed information on the SC810 1U rackmount server chassis. You should follow the procedures given in this chapter when installing, removing or reconfiguring SCSI or peripheral drives and when replacing system power supply units and cooling fans.

Chapter 7: BIOS

The BIOS chapter includes an introduction to BIOS and provides detailed information on running the CMOS Setup Utility.

Appendix A: BIOS Error Beep Codes and Messages

Appendix B: Post Diagnostic Error Messages

Appendix C: List of Figures

Appendix D: System Specifications

Manual Organization

Chp1	Chp2	Chp3	Chp4	Chp5	Chp6	Chp7	App. A/B/C/D
Introduction	**Installation**	**System Interface**	**System Safety**	**Motherboard Details**	**Chassis Details**	**BIOS and Setup Routine**	**Appendices**
Overview	Overview	Overview	Electrical Safety	Static Safety	Static Safety	Introduction	BIOS Error Beep Codes
Chassis Features	Precautions	Control Panel Buttons	General Safety	MB Installation	Control Panel	BIOS Features	Post Diag. Error Messages
Mainboard Features	Rack Installation	Control Panel LEDs	ESD Safety	Cables	System Fans	Running CMOS Setup	List of Figures
Contacting Supermicro	Setup	SCSI LEDs		I/O Ports	Drive Bay Inst.		System Specs
		Power Supply Switch		CPU Installation	Power Supply		
		Motherboard LED		Memory			
				PCI Cards			
				MB Layout			
				Connectors			
				DIP Switches			
				Jumpers			
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Chapter 6: Troubleshooting

Chapter 7: BIOS

Appendices:

Chapter 1

Introduction to the SuperServer 6011D

1-1   Overview

The Supermicro SuperServer 6011D is a high-end dual processor, 1U rackmount server that features some of the most advanced technology currently available. The SuperServer 6011D is comprised of two main sub-systems: the SC810 1U rackmount chassis and the P3TDDR dual 370-pin Pentium III FCPGA processor mainboard. Please refer to our web site for information on operating systems that have been certified for use with the SuperServer 6011D. (www.supermicro.com)

In addition to the mainboard and chassis, various hardware components may have been included with your SuperServer 6011D, as listed below.

●   Up to two (2) 370-pin Pentium III FCPGA processors*

●   Watchdog (requires scripting)

●   Two (2) CPU heat sinks*

●   Up to 4 GB SDRAM main memory*

●   One (1) 1.44MB floppy drive

●   One (1) slim CD-ROM drive

●   One (1) control panel PCB

●   One (1) SCA SCSI backplane

●   Two (2) SCA SCSI drive carriers

●   SCSI Accessories
     One (1) internal 68-pin Ultra160 SCSI cable for SCA SCSI backplane
     One (1) set of SCSI driver diskettes
     One (1) SCSI manual

●   One (1) 5V 64/32-bit, 33 MHz PCI riser card (installed)

- Rackmount hardware (with screws):
  Two (2) rack rail assemblies
  Six (6) brackets for mounting the rack rails to a rack/Telco rack

- One (1) CD-ROM containing drivers and utilities:
  ATI Rage XL 8MB PCI graphics controller driver
  LAN driver
  SCSI driver

- SuperServer 6011D User's Manual

* *Type and number depends upon the configuration ordered.*

1-2 Server Chassis Features

The SuperServer 6011D is a high-end, scaleable 1U rackmount server plat-form designed with today's most state-of-the-art features. The following is a general outline of the main features of the SC810 chassis.

System Power

When configured as a SuperServer 6011D, the SC810 chassis includes a 250W power supply.

SCSI Subsystem

The SCSI subsystem supports two 80-pin SCA Ultra160 SCSI hard drives. (Any standard 1" drives are supported. SCA = Single Connection Attach-ment.) The SCSI drives are connected to an SCA backplane that provides power, bus termination and configuration settings. Such SCSI drives are also hot-swap units.

Control Panel

The SC810's control panel provides important system monitoring and control information. LEDs indicate power on, network activity, hard disk drive ac-tivity and system overheat conditions. The control panel also includes a main power button and a system reset button.

I/O Shield

The SC810 is a 1U rackmount chassis. Its I/O shield provides one mother-board expansion slot, one COM port (the other is internal), two USB ports, PS/2 mouse and keyboard ports, a graphics port and two Ethernet ports. (See Figure 1-1.)

Rear of chassis

Mouse Port

Parallel Port

Keyboard Port

USB Ports

COM1 Port

VGA (Graphics) Port

Ethernet Ports
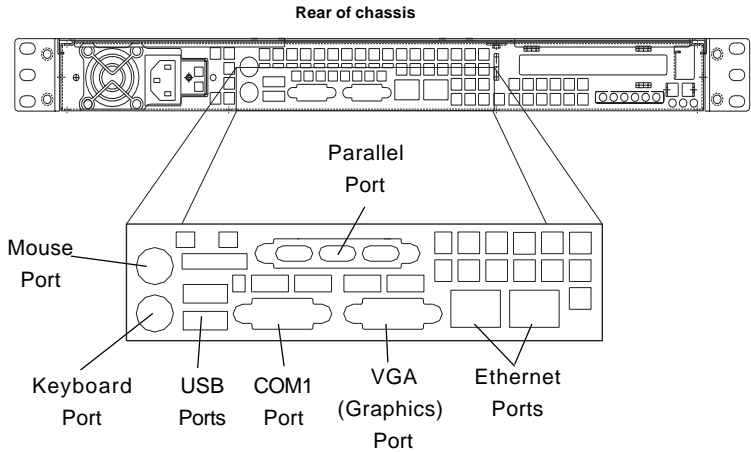
Figure 1-1. I/O Shield

Cooling System

The SC810 chassis has an innovative cooling design that includes a 10-cm blower system cooling (intake) fan and one optional 4-cm fan that can be installed in the midsection of the chassis. The blower fan plugs into a chassis fan header on the motherboard and operates at full rpm continu-ously. If it breaks down, the ambient air temperature inside the chassis will rise and activate an overheat LED.

1-3   Mainboard Features

At the heart of the SuperServer 6011D lies the P3TDDR, a dual processor motherboard designed to provide maximum performance. Below are the main features of the P3TDDR .

Chipset

The P3TDDR is based on the VIA Apollo Pro 266T chipset, which is a high-performance core logic chipset that consists of VIA's Apollo Pro266 chipset consists of two major components: the VT8633 V-Link Memory Host System Controller(North-bridge) and the VT8233 V-Link Client PCI/LPC Controller (South-bridge).

The VIA Apollo Pro266 chipset is a high performance, cost-effective and energy efficient chipset for the implementation of AGP/V-Link/PCI/LPC computer systems based on 64-bit, 370 Pentium III (66 MHz/100MHz/133MHz), processors.

The VT8633 Host System Controller provides superior performance between the CPU, DIMM, AGP bus, and V-Link inferface with pipelined, burst, and concurrent operation. The VT8233 V-Link Client Controller is a highly integrated PCI/LPC controller. Its internal bus structure is based on 33MHz PCI bus. The VT8233 integrated Clint V-Link Controller, which supports 266 MB bandwidth between Host/Client V-Link interface, provides a V-Link PCI and V-Link LPC controller. It supports three PCI slots arbitration and decoding for all integrated functions and LPC bus.

Processors

The P3TDDR supports single or dual Pentium® III FCPGA 500 MHz to 1.40 GHz and faster processors with a 512K L2 cache and single or dual low power Pentium® III processors at front side bus speeds of 133 and 100 MHz. Please refer to the support section of our web site for a complete listing of supported processors:
(http://www.supermicro.com/TechSupport.htm).

Memory

The P3TDDR has 4 DIMM slots that support up to 4 GB of ECC registered PC266 or PC200 DDR SDRAM. PC266 memory modules will run at full speed (266 MHz) in three slots only. If four slots are populated with PC266, memory will run at 200 MHz. Module sizes of 128MB, 256MB, 512MB and 1 GB may be used to populate the DIMM slots. The DIMM slots are situated at a 25 degree angle to create a low profile and to promote efficient airflow through the chassis. It is not recommended that system memory speeds be mixed -- doing so will result in the memory operating at the slower speed.

Onboard SCSI

Onboard SCSI is provided with an Adaptec AIC-7892 SCSI controller chip, which supports single channel, Ultra160 SCSI at a burst throughput rate of 160 MB/sec. The P3TDDR provides two SCSI ports.

PCI Expansion Slots

The P3TDDR has three 32-bit 33 MHz PCI slots. However, the 6011D has only one 64/32-bit 33 MHz PCI slot available, since a riser card is used in PCI#1 slot to allow a full height PCI card to be used in a 1U chassis (such PCI cards are too long to fit within the chassis when the riser card is used in the PCI#2 slot).

ATI Graphics Controller

The P3TDDR has an integrated ATI video controller based on the Rage XL graphics chip. The Rage XL fully supports sideband addressing. An 8 MB graphics memory chip has been integrated onboard the P3TDDR to provide graphics memory. This onboard graphics package provides a bandwidth of up to 512 MB/sec over a 32-bit graphics memory bus.

Onboard Controllers/Ports

One floppy drive controller and two onboard IDE controllers support up to four hard drives or ATAPI devices. Onboard I/O ports include one COM port, four USB ports, PS/2 mouse and keyboard ports, a video (monitor) port, one parallel port and two 10/100 MB Intel 82559 Ethernet (NIC) ports, which back each other up in case one port loses its connection. The P3TDDR also has an onboard ATI graphics controller (see above).

Other Features

Other onboard features that promote system health include five voltage monitors, two CPU temperature sensors, four fan speed sensors, a chassis intrusion header, auto-switching voltage regulators, chassis and CPU overheat sensors, virus protection and BIOS rescue. Watchdog circuitry is also provided and requires scripting for implementation.

1-4   CONTACTING SUPERMICRO

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Chapter 2

Server Installation

2-1 Overview

This chapter provides a quick setup checklist to get your SuperServer 6011D up and running. Following these steps in the order given should enable you to have the system operational in a minimum amount of time. This quick setup assumes that your SuperServer 6011D system has come to you with the processors and memory preinstalled. If your system is not already fully integrated with a motherboard, processors, system memory etc., please turn to the chapter or section noted in each step for details on installing specific components.

2-2 Unpacking the SuperServer 6011D

You should inspect the box the SuperServer 6011D was shipped in and note if it was damaged in any way. If the server itself shows damage you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold the SuperServer 6011D. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need to place it near a grounded power outlet. Read the Rack and Server Precautions in the next section.

2-3 Preparing for Setup

The box the SuperServer 6011D was shipped in should include two sets of rail assemblies, two rail mounting brackets and the mounting screws you will need to install the system into the rack. Follow the steps in the order given to complete the installation process in a minimum amount of time. Please read this section in its entirety before you begin the installation procedure outlined in the sections that follow.

Choosing a Setup Location:

- Leave enough clearance in front of the rack to enable you to open the front door completely (~25 inches).
- Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing.

⚠ Warnings and Precautions! ⚠

Rack Precautions:

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack.
- In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a component from the rack.
- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

Server Precautions:

- Review the electrical and general safety precautions in Chapter 4.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components on the bottom of the rack first, and then work up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the hot plug SCSI drives and power supply units to cool before touching them.
- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

2-4   Installing the SuperServer 6011D into a Rack

This section provides information on installing the SuperServer 6011D into a rack unit. If the 6011D has already been mounted into a rack, you can skip ahead to Sections 2-5 and 2-6. There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. The following is a guideline for installing the 6011D into a rack with the rack rails provided. You should also refer to the installation instructions that came with the rack unit you are using.

Identifying the Sections of the Rack Rails:

You should have received two rack rail assemblies with the SuperServer 6011D. Each of these assemblies consist of two sections: an inner fixed chassis rail that secures to the 6011D (A) and an outer fixed rack rail that secures directly to the rack itself (B). A sliding rail guide sandwiched between the two should remain attached to the fixed rack rail. (See Figure 2-1.) The A and B rails must be detached from each other to install.

To remove the fixed chassis rail (A), pull it out as far as possible - you should hear a "click" sound as a locking tab emerges from inside the rail assembly and locks the inner rail. Then depress the locking tab to pull the inner rail completely out. Do this for both the left and right side rack rail assemblies.

Mounting Holes

B

Locking Tab

A
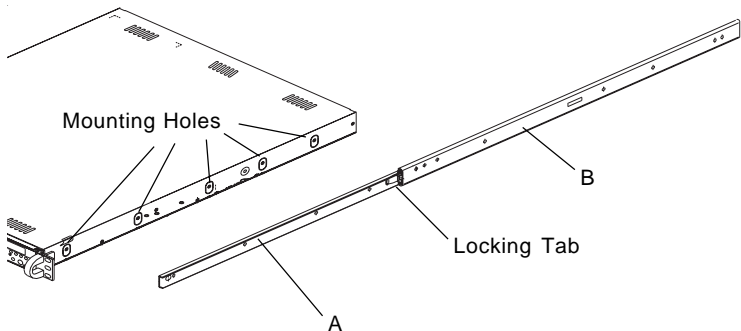
Figure 2-1.   Identifying the Sections of the Rack Rails

Installing the Chassis Rails:

Position the fixed chassis rail sections you just removed along the side of the 6011D chassis making sure the five screw holes line up. Note that these two rails are left/right specific. Screw the rail securely to the side of the chassis (see Figure 2-2). Repeat this procedure for the other rail on the other side of the chassis. You will also need to attach the rail brackets when installing into a telco rack.

Locking Tabs: As you have seen, both chassis rails have a locking tab, which serves two functions. The first is to lock the server into place when installed and pushed fully into the rack, which is its normal position. Secondly, these tabs also lock the server in place when fully extended from the rack. This prevents the server from coming completely out of the rack when you pull it out for servicing.
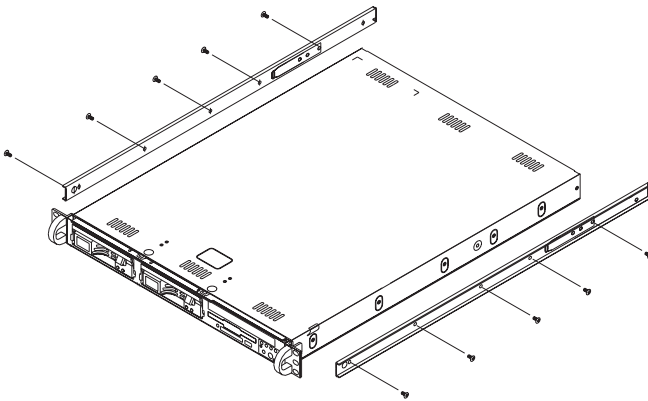
Figure 2-2. Installing Chassis Rails

Installing the Rack Rails:

Determine where you want to place the SuperServer 6011D in the rack. (See Rack and Server Precautions in Section 2-3.) Position the fixed rack rail/sliding rail guide assemblies at the desired location in the rack, keeping the sliding rail guide facing the inside of the rack. Screw the assembly securely to the rack using the brackets provided. Attach the

other assembly to the other side of the rack, making both are at the exact same height and with the rail guides facing inward.

Installing the Server into the Rack:

You should now have rails attached to both the chassis and the rack unit. The next step is to install the server into the chassis. Do this by lining up the rear of the chassis rails with the front of the rack rails. Slide the chassis rails into the rack rails, keeping the pressure even on both sides (you may have to depress the locking tabs when inserting). See Figure 2-3.

When the server has been pushed completely into the rack, you should hear the locking tabs "click". Finish by inserting and tightening the thumbscrews that hold the front of the server to the rack.

Figure 2-3. Installing the Server into a Rack
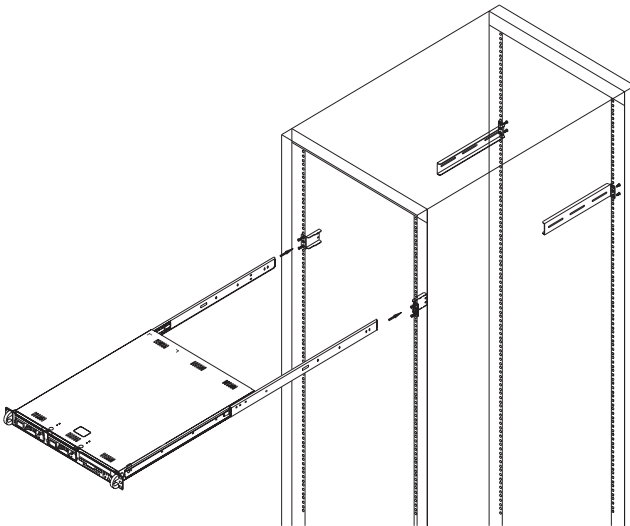
Installing the Server into a Telco Rack:

If you are installing the SuperServer 6011D into a Telco type rack, follow
the directions given on the previous pages for rack installation. The only
difference in the installation procedure will be the positioning of the rack
brackets to the rack. They should be spaced apart just enough to
accomodate the width of the telco rack.
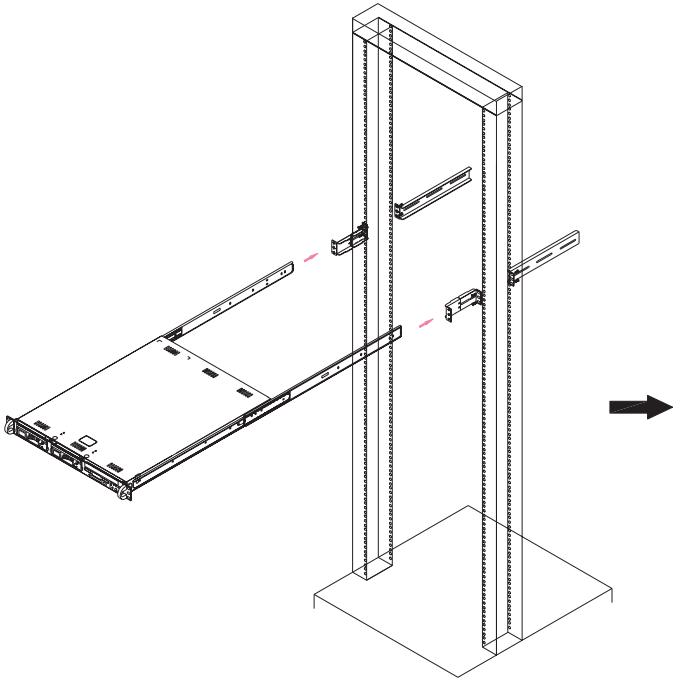
Figure 2-4.   Installing the Server into a Telco Rack

2-5   Checking the Motherboard Setup

After you install the 6011D in the rack, you will need to open the unit to make sure the motherboard is properly installed and all the connections have been made.

1. Accessing the inside of the 6011D **(see Figure 2-5):**

First, release the retention screws that secure the unit to the rack. Grasp the two handles on either side and pull the unit straight out until it locks (you will hear a "click"). Next, depress the two buttons on the top of the chassis to release the top cover. There is a large rectangular recess in the middle front of the top cover to help you push the cover away from you until it stops. You can then lift the top cover from the chassis to gain full access to the inside of the server.

2. Check the CPUs (processors):

You should have one or two processors already installed into the system board. Each processor should have its own heatsink attached. See Section 5-5 for instructions on processor installation.

3. Verify the proper CPU core/bus ratio setting:

You need to verify that the CPU core/bus ratio as set with DIP Switch 1 matches the speed of your installed processors. This DIP Switch is defaulted to 5.5, which corresponds to 550 MHz processors running on a 100 MHz front side bus (FSB). If the setting is different or if you are using processors of a different speed, you may need to change this setting. (See Section 5-9 for setting the core/bus ratio with DIP Switch 1.)

4. Check the system memory:

Your 6011D server system may have come with system memory already installed. Make sure all DIMMs are fully seated in their slots. For details on adding system memory, refer to Section 5-6.

5. Installing add-on cards:

If desired, you can install an add-on card to the system. See Section 5-7 for details on installing a PCI add-on card.

Top Cover (Removed)

Cover Release
Buttons

PCI Riser Card
Retention Rail

Cover Recess

P3TDDR
Motherboard

Blower Fan

Power Supply

System
Memory

Air Seal

SCSI Drive
(Removed)

Floppy Drive

Control Panel

CD-ROM Drive
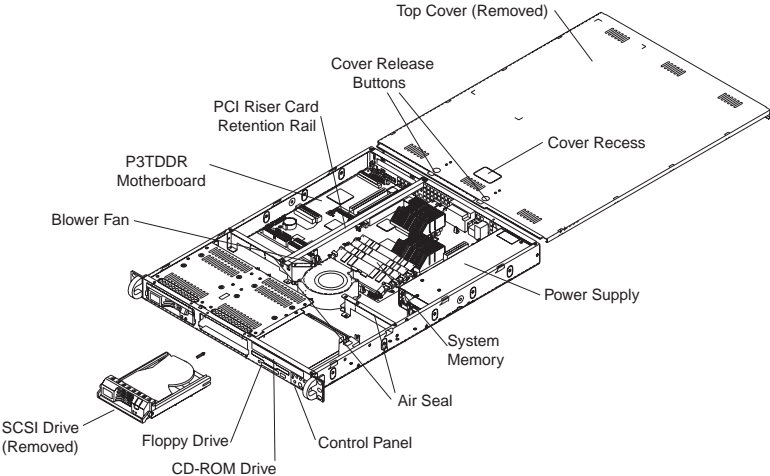
**Figure 2-5. Accessing the Inside of the SuperServer 6011D
(with one SCSI Drive removed)**

6. Check all cable connections and airflow:

Make sure all power and data cables are properly connected and not blocking the airflow. See Section 5-6 for details on cable connections. Also, check the air seals for damage. The air seals are located under the blower fan and beneath the frame cross section that separates the drive bay area from the motherboard area of the chassis.

2-6   Checking the Drive Bay Setup

Next, you should check to make sure the peripheral drives and the SCSI drives and SCA backplane have been properly installed and all connections have been made.

1. Accessing the drive bays:

All drives can be accessed from the front of the server. For servicing the CD-ROM and floppy drives, you will need to remove the top chassis cover. The SCSI disk drives can be installed and removed from the front of the chassis without removing the top chassis cover.

2. Installing a CD-ROM and floppy disk drives:

Refer to Section 6-8 if you need to reinstall a CD-ROM and/or floppy disk drive to the system.

3. Check the SCSI disk drives:

Depending upon your system's configuration, your system may have one drive already installed. If you need to install SCSI drive, please refer to Section 6-4.

4. Check the airflow:

Airflow is provided by a 10-cm input fan and one (optional) 4-cm cooling fan. The system component layout was carefully designed to promote sufficient airflow through the small 1U rackmount space. Also note that all power and data cables have been routed in such a way that they do not block the airflow generated by the fans.

5. Supplying power to the system:

The last thing you must do is to provide input power to the system. Plug the power cord from the power supply unit into a high-quality power strip that offers protection from electrical noise and power surges. It is recommended that you use an uninterruptible power supply (UPS).

Chapter 3

System Interface

3-1   Overview

There are several LEDs on the control panel as well as others on the SCSI drive carriers and the motherboard to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. There are also two buttons on the chassis control panel and an on/off switch on the power supply. This chapter explains the meanings of all LED indicators and the appropriate response you may need to take.

3-2   Control Panel Buttons

There are two push-button buttons located on the front of the chassis. These are (in order from left to right) a reset button and a power on/off button.

RESET

● **RESET:** The reset switch reboots the system.

● **POWER:**   This is the main power switch, which is used to apply or turn off the main system power. Turning off system power with this button removes the main power but keeps standby power supplied to the system. (See also the power supply on/off switch in Section 3-5.)

3-3   Control Panel LEDs

The control panel located on the front of the SC810 chassis has five LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illumi-nated and any corrective action you may need to take.

●   **Overheat:** Indicates an overheat condition in the chassis. This may be caused by cables obstructing the airflow in the system, or the ambient room temperature being too warm. You should also check to make sure that the chassis cover is installed and that all fans are present and operat-ing normally. Finally, check the air seals for damage. The air seals are located under the blower fan and beneath the frame cross section that separates the drive bay area from the motherboard area of the chassis.

NIC2

●   **NIC2:**   Indicates network activity on LAN2 when flashing.

NIC1

●   **NIC1:**   Indicates network activity on LAN1 when flashing.

●   **HDD:** Indicates IDE channel activity. On the SuperServer 6011D, this light indicates CD-ROM drive activity when flashing.

● **Power:** Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.

3-4   SCSI Drive Carrier LEDs

A SCSI drive carrier has two LEDs.

● **Green:** When illuminated, the green LED on the front of the SCSI drive carrier indicates drive activity. A connection to the SCSI SCA backplane enables this LED to blink on and off when that particular drive is being accessed.

● **Red:** A SAF-TE compliant backplane is needed to activate the red LED to indicate a drive failure. (A SAF-TE compliant SCSI backplane is optional on the 6011D.) If one of the SCSI drives fail, you should be notified by your system management software. Please refer to Section 6-4 for instructions on replacing failed SCSI drives.

3-5   Power Supply Switch

An on/off switch is located on the back of the power supply. This switch should normally be on at all times. Turning this switch to the off position removes both the main and standby power from the system, as opposed to the power button located on the control panel on the front of the chassis.

3-6   Motherboard LED

There is only one LED on the motherboard. When illuminated, it indicates that system power is present on the motherboard. This LED is located in the corner of the P3TDDR near the IDE #1 connector.

NOTES

Chapter 4

System Safety

4-1 Electrical Safety Precautions

Basic electrical safety precautions should be followed to protect yourself from harm and the SUPERSERVER 6011D from damage:

● Be aware of the locations of the power on/off switch on the chassis as well as the room's emergency power-off switch, disconnection switch or electrical outlet. If an electrical accident occurs, you can then quickly remove power from the system.

● Do not work alone when working with high voltage components.

● Power should always be disconnected from the system when removing or installing main system components, such as the motherboard, memory modules and hard disk and floppy drives. When disconnecting power, you should first power down the system with the operating system first and then unplug the power cords of all the power supply units in the system.

● When working around exposed electrical circuits, another person who is familiar with the power-off controls should be nearby to switch off the power if necessary.

● Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will allow an electrical shock across the heart. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards with which they come into contact.

● Do not use mats designed to decrease static electrical discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.

● The power supply power cords must include a grounding plug and must be plugged into grounded electrical outlets.

● Motherboard Battery: **CAUTION** - There is a danger of explosion if the onboard battery (located near the IDE#2 connector) is installed upside down, which will reverse its polarities. This battery must be replaced only with the same battery type, or an equivalent type recommended by the original battery's manufacturer. Dispose of used batteries according to the manufacturer's instructions.

4-2   General Safety Precautions

Follow these rules to ensure general safety:

● Keep the area around the SuperServer 6011D clean and free of clutter.

● The SuperServer 6011D weighs approx. 26 lbs. (11.8 kg.) when fully loaded. When lifting the system, two people at either end should lift slowly with their feet spread out to distribute the weight. Always keep your back straight and lift with your legs.

● Place the chassis top cover and any system components that have been removed away from the system or on a table so that they won't accidentally be crushed.

● While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.

● Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you or motherboard components if they come into contact with printed circuit boards or areas where power is present.

● After accessing the inside of the system, close the system back up and secure it to the rack unit with retention screws after ensuring that all electrical connections have been made.

4-3   ESD Precautions

Electrostatic discharge (ESD) is generated by two objects with
different electrical charges coming into contact with each other. An
electrical discharge is created to neutralize this difference, which can
damage electronic components and printed circuit boards. The
following measures are generally sufficient to neutralize this
difference before contact is made to protect your equipment from ESD:

● Use a grounded wrist strap designed to prevent static discharge.

● Keep all components and printed circuit boards (PCBs) in their
antistatic bags until ready for use.

● Touch a grounded metal object before removing the board from the
antistatic bag.

● Do not let components or PCBs come into contact with your
clothing, which may retain a charge even if you are wearing a wrist
strap.

● Handle a board by its edges only; do not touch its components,
peripheral chips, memory modules or contacts.

● When handling chips or modules, avoid touching their pins.

● Put the motherboard and peripherals back into their antistatic bags
when not in use.

● For grounding purposes, make sure your computer chassis
provides excellent conductivity between the power supply, the case,
the mounting fasteners and the motherboard.

NOTES

Chapter 5

Advanced Motherboard Setup

This chapter covers the steps required to install the SUPER P3TDDR motherboard into the SC810 chassis, connect the data and power cables and install add-on cards. All motherboard jumpers and connections are also described. A layout and quick reference chart are on pages 5-6 and 5-7.

5-1 Static-Sensitive Devices

ElectroStatic Discharge (ESD) can damage electronic components. To prevent damage to your system board, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a wrist strap designed to prevent electrostatic discharge that is grounded to the computer chassis.
- Touch a grounded metal computer object before removing the board from the antistatic bag.
- Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity among the power supply, the case, the mounting fasteners and the motherboard.

Unpacking

The motherboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure the person handling it is static protected.

5-2   Processor Installation

> ⚠ *When handling the processor package, avoid placing direct pressure on the fan hub (label area).*

The following pages cover the installation procedures. You should install the processor in the motherboard first, then install the motherboard in the chassis, then the memory and add-on cards, and finally the cables and drivers. Following the installation procedures in the order they appear in this chapter should eliminate the most common problems encountered when building a system.

IMPORTANT: Always connect the power cord last, and always re-move it before adding, removing or changing any hardware compo-nents.

Heat Sink

Follow the instructions that came with your processors or heat sinks to attach heat sinks to the processors. Each of your heat sinks should have a 3-pin fan cable connecting to the CPU FAN header. Make sure that good contact is made between the processors and the heat sinks. Insufficient contact, incorrect types of heat sinks, fans, or thermal compound used or improper amount of thermal compound applied on the CPU die can cause the processors to overheat, which may crash the system.

IMPORTANT: It is highly recommended that only Supermicro heat sinks, designed for use in the 6011D be used -- the use of other heat sinks, including those boxed with CPUs, may result in damage to the P3TDDR motherboard.

Processor

You are now ready to install the processors. Your P3TDDR motherboard has two 370-pin, FCPGA type sockets and can support single or dual Pentium® III FCPGA 500 MHz to 1.40 GHz and faster processors with a 512K L2 cache and single or dual low power Pentium® III processors at front bus speeds of 133 and 100 MHz. Lift the lever on the FCPGA socket and install with the notched corner of the processor oriented with pin 1. Fully seat the processor into the socket and then close the lever. See Figure 2-1 for views of the FCPGA 370-pin socket before and after proces-sor installation.

Pin 1

Lever

Notched Corner

Processor
(installed)
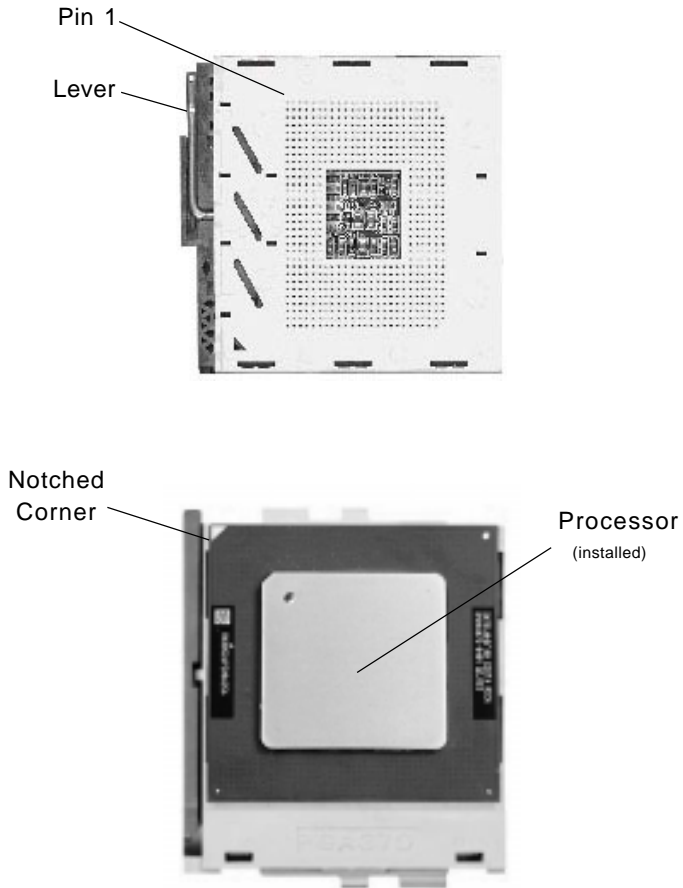
**Figure 5-1. FCPGA Socket: Empty and with Processor Installed
(Low Power Pentium III Shown)**

5-3   Mounting the Motherboard in the Chassis

All motherboards have standard mounting holes to fit different types of chassis. Chassis may include a variety of mounting fasteners made of metal or plastic. Although a chassis may have both types, metal fasteners are the most highly recommended because they ground the motherboard to the chassis. For this reason, it is best to use as many metal fasteners as possible.

5-4   Installing DIMMs

Please check the following website page to find recommended memory modules for your Supermicro motherboard:

http://www.supermicro.com/TECHSUPPORT/FAQs/Memory_vendors.htm

---

CAUTION

Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

Memory Module Installation (See Figure 2-2)

1. Install DDR-RAM memory modules into the DIMM slots.
2. Insert each memory module vertically into its slot. Pay attention to the two notches along the bottom of the module to prevent inserting the DIMM incorrectly.
3. Gently press down on the memory module until it snaps into place.
4. For the P3TDDR, four DDR-RAM DIMM sockets support up to 4GB of DDR-RAM. PC1600 and PC2100 memory are both fully supported, however PC266 is supported at full speed (266 MHz) in three slots only. If four slots are populated with PC266 it will run at 200 MHz.
5. DDR-RAM speeds should not be mixed. The P3TDDR can use any configuration of registered-unregistered and ECC-nonECC; however, it is not recommended that different such configurations be used across the memory installation.

Figure 5-2.   Side View of DIMM Installation into Slot

To Install:
Insert module vertically and press down until it snaps into place. Pay attention to the alignment notch.

Notch

DDR

Notch

Release Tab

Note: Notch should align with the receptive point on the slot

Release Tab

Top View of DDR Slot

Release Tab   Release Tab
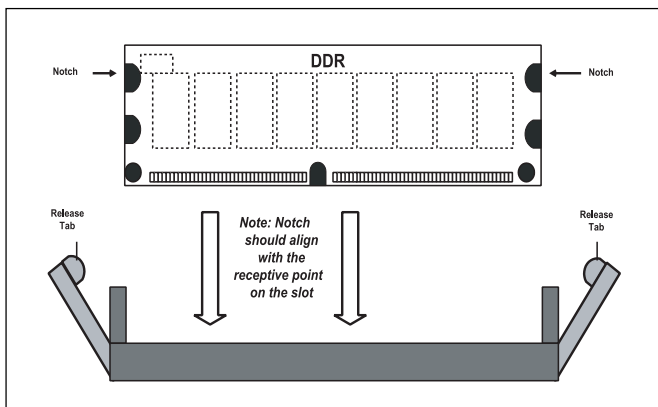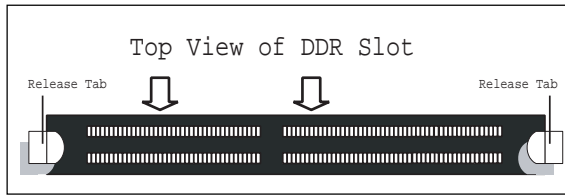
To Remove:
Use your thumbs gently to push each release tab outward
to release the DIMM from the slot.

5-5   Port/Control Panel Connector Locations

The I/O ports are color coded in conformance with the PC99 specification to
make establishing your system easier. See Figure 5-3 below for the colors
and locations of the various I/O ports.
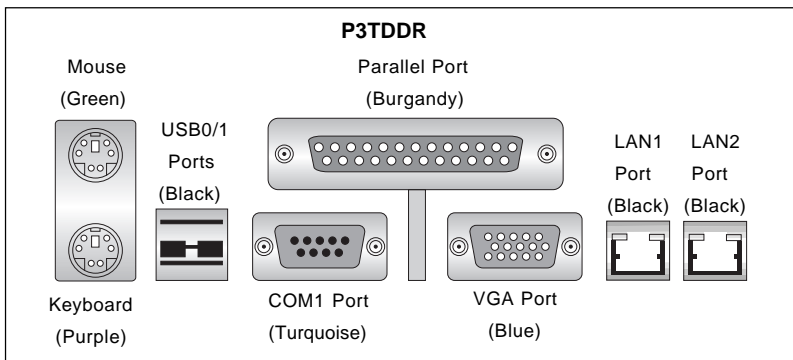
Figure 5-3. I/O Port Locations and Definitions

Figure 5-4. SUPER P3TDDR Layout
(not drawn to scale)
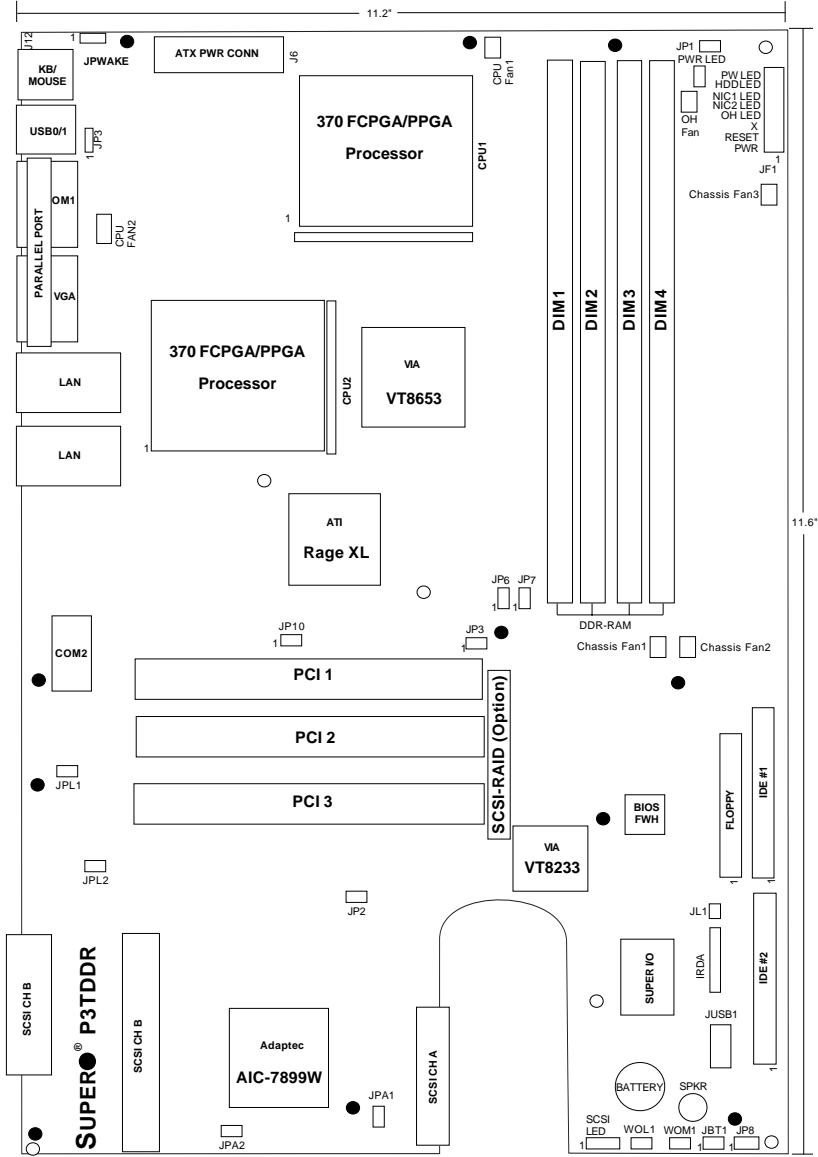
P3TDDR Quick Reference

Jumpers	Description	Default Setting
JBT1	CMOS Clear	Pins 1-2 (Normal)
JPA1/2	SCSI ChA/B Termination	Pins 1-2 (Enable)
JPWAKE(JP1)	Keyboard Wake-Up	Pins 1-2 (Disable)
JP2	SCSI	Pins 1-2 (Enable)
JP3	VGA	Pins 1-2 (Enable)
JP6, JP7	FSB Speed Select	(See Page 5-14)
JP8	Speaker	Pins 1-2 (Enable)
JP10	VGA IRQ	Pins 1-2 (Enable)
JPL1/2	LAN 1 & 2	Closed (Enable)

Connectors	Description
COM1	COM1 Serial Port Connector
AGP	AGP Onboard Video Output
Parallel Port	Printer Port
CPU Fan 1/2	CPU Fan 1 & 2 Headers
OH Fan	Overheat Fan Header
Chassis Fan1-3	Chassis Fan Headers 1-3
DIM1-DIM4	4 DDR-RAM slots
IDE1/2	IDE Hard Disk Drive Connectors
JA1	SCSI Connector CH A
JA2/3	SCSI Connectors 2 & 3 CH B
J6	ATX Power Connector
J9	Floppy Disk Drive Connector
J10 (IRDA)	IR Connector
J1	PS/2 Keyboard/Mouse
JF1	Front Control Panel
JL1	Chassis Intrusion Header
WOM1	Wake-On-Ring Header
WOL1	Wake-on-LAN Header
USB0/1	Back Universal Serial Bus Ports
USB2/3	Front USB Header
SCSI RAID	Optional Add-On Card

*Also see the figures on page 5-5 for the I/O ports and page 5-9 for the Front Control Panel (JF1) connectors.

Please refer to Section 5-8 for detailed information on jumper settings.

5-6   Adding PCI CARDS

1.   32-bit PCI slot:

The 6011D system board has three 32 bit, 33 MHz, 5V, PCI slots. A riser card designed specifically for using this slot in a 1U rackmount chassis, such as the SUPER SERVER SC810, is included with your system. The riser card allows a single installed PCI card to sit at a 90 degree angle so it can fit inside the chassis. This riser card accommodates 32bit, 33 MHz 5 V, PCI cards.

2.   PCI card installation:

Before installing a PCI add-on card, make certain that you choose the correct riser card for the type of PCI card you are installing (see step 1). Begin by removing the I/O shield for the PCI slot. Then fully seat the PCI card into the riser card and screw it into the metal retention rail (shown in Figure 2-5). Finally, insert the riser card into the PCI slot on the motherboard, pushing down with your thumbs evenly on both sides of the card. (See Figure 5-6 for location.) Finish by using a screw to secure the top of the card shield to the chassis. The I/O shield protects the motherboard and its components from electromagnetic interference (EMI) and aids in proper ventilation, so make sure there is always a shield covering the slot in the absence of a PCI card.

Front Control Panel

JF1 contains header pins for various front control panel connectors. See Figure 5-5 for the pin definitions of the momentary power switch, momentary reset switch and the overheat, network interface card, Hard disk drive, and power-on LEDs.

Refer to the Sections 5-7 and 5-8 for connectors and pin definitions.

Figure 5-5.   Front Control Panel Connectors

PW LED

HDD LED

NIC1 LED

NIC2 LED

OverHeat LED

X

Reset

Power On/Off

1

JF1
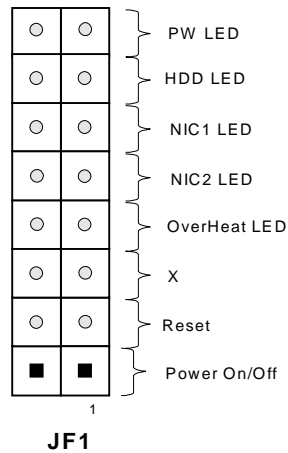
5-7 Connecting Cables (see previous page for locations)

Power Supply Connector

The primary power supply connector on the P3TDDR meets the SSI (Superset ATX) 24-pin specifications; however, it also supports an ATX 20-pin connector. Please refer to Table 5-1a for pin definitions. (Also see Figure A below for connector orientation.) If a 20-pin connector is used, please refer to Figure B for cable placement and to Table 5-1c for standard wiring colors.

Table 5-1a
ATX Power Supply 24-pin Connector
Pin Definitions (ATX POWER)

Pin Number	Definition	Pin Number	Definition
13	+3.3V	1	+3.3V
14	-12V	2	+3.3V
15	COM	3	COM
16	PS_ON#	4	+5V
17	COM	5	COM
18	COM	6	+5V
19	COM	7	COM
20	Res(NC)	8	PWR_OK
21	+5V	9	5VSB
22	+5V	10	+12V
23	+5V	11	+12V
24	COM	12	+3.3V

Pin 24   Pin 13

Pin 12   Pin 1
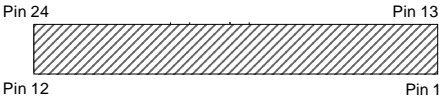
(Figure A SSI 24-pin Power Cable)

Pin 20   Pin 11

Pin 10   Pin 1
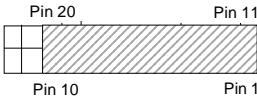
(Figure B SSI 20-pin Power Cable)

Table5-1b
ATX Power Supply 20-pin Connector

Pin Number	Definititio	Pin #	Definition
11	+3.3V	1	+3.3V
12	-12V	2	+3.3V
13	COM	3	COM
14	PS_ON	4	+5V
15	COM	5	COM
16	COM	6	+5V
17	COM	7	COM
18	-5V	8	PW-OK
19	+5V	9	5VSB
20	+5V	10	+12V

Table 5-1c
Power Supply Wiring Color Definitions

Color	Definition
Orange	+3.3V
Black	Com
Red	5V
White	Power OK
Yellow	+12V
Purple	5V standby
Brown	-5V
(For Reference only)	

Infrared Connector

See Table 5-2 for pin definitions. See the Technical Support section of our web page for information on the infrared devices you can connect to the system.

Table 5-2
Infrared Pin Definitions

Pin Number	Definition
1	+5V
2	Key
3	IRRX
4	Ground
5	IRTX

IR Header

PW_ON Connector

The PW_ON LED connectors are located on pins 1 & 2 of JF1. Momentarily contacting both pins will power the system on/off. The user can also configure this button to function as a suspend button. (See the "Power Button Mode" setting in BIOS.) To turn off the power when set to suspend mode, hold down the power button for at least 4 seconds. See Table 5-3 for pin definitions.

Table 5-3
PW_ON Connector
Pin Definitions

Pin number	Definition
1 2	Momentary Contact

JF1

Reset Connector

The Reset LED connectors are located on pins 3 & 4 of JF1. This connector attaches to the hardware reset switch on the computer case. See Table 5-4 for pin definitions.

Table 5-4
Reset Pin Definitions

Pin number	Definition
3 4	Momentary Contact

JF1

Over Heat LED

The Over Heat LED connectors are located on pins 7 & 8 of JF1. See Table 5-5 for pin definitions.

Table 5-5
Over Heat LED Pin Definitions

Pin Number	Definition
7	PWR
8	RTN

JF1

NIC1/2 LED Connector

The Network Interface Card1/2 LED connectors are located on pins 9/11 to 10/12 of JF1. See Table 5-6 for pin definitions

Table 5-6
Network Interface Card t LED
Pin Definitions (NIC)

Pin Number	Definition
9/11	PWR
10/12	RTN

JF1

Hard Disk Drive LED (HDD) Connector

The Hard Disk Drive LED is located on pins 13 and 14 of JF1. See Table 5-7 for pin definitions

Table 5-7
Hard Disk Drive LED Connector (HDD)
Pin Definitions

Pin Number	Definition
13	PWR
14	RTN

JF1

Power Indicator LED

The Power Indicator LED is located on pins 15 and 16 of JF1. See Table 5-8 for pin definitions

Table 5-8
Power Indicator LED Connector (PW LED)
Pin Definitions

Pin Number	Definition
15	PWR
16	RTN

JF1

ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and the PS/2 mouse are located on J12. See Table 5-9 for pin definitions. (The mouse port is above the keyboard port. See Figure 5-3 for locations.)

Table 5-9
PS/2 Keyboard and Mouse Port Pin Definitions

Pin Number	Definition
1	Data
2	NC
3	Ground
4	VCC
5	Clock
6	NC

Universal Serial Bus (USB)

Four Universal Serial Bus connectors/headers are located on USB0/1 and USB2/3. The USB0/1 ports are located next to the PS/Mouse connector and the double JUSB1 header is located near the battery. See Table 5-10 for pin definitions.

Table 5-10
Universal Serial Bus Pin Definitions
USB0/1

Pin Number	Definition
1	+5V
2	P0-
3	P0+
4	Ground

USB2/3

Pin Number	Definition	Pin Number	Definition
1	+5V	1	+5V
2	P0-	2	P0-
3	P0+	3	P0+
4	Ground	4	Ground
5	key	5	Ground

*Note: NC indicates "no connection".

Serial Port

One COM1 serial port connector is provided on your board. See Table 5-11 for pin definitions for the COM1 connector. A 10-pin serial ribbon cable is required if connecting a device to the COM2 header, which is located near the LAN2 port.

Table 5-11
Serial Port Pin Definitions (COM1)

Pin Number	Definition	Pin Number	Definition
1	DCD	6	DSR
2	Serial In	7	RTS
3	Serial Out	8	CTS
4	DTR	9	RI
5	Ground	10	NC*

Wake-On-LAN
Wake-On-Ring (Modem)

The Wake-On-LAN header is "WOL1" and the Wake-On-Ring header is designated "WOM1." (This function allows your computer to receive and be "awakened " by an incoming call when in the suspend state.) They are both located near the battery. Refer to Table 5-12 for pin definitions. You must enable the "LAN Wake-Up" setting in BIOS to use this function. (You must also have a LAN card with a Wake-on-LAN connector and cable to use the WOL feature. The WOM feature requires a modem be connected to the system that has a WOM (WOR) connector and cable.)

Table 5-12
Wake-On-LAN /Wake-On-Modem
Pin Definitions (WOL/WOM)

Pin Number	Definition
1	+5V Standby
2	Ground
3	Wake-up

Fan Headers*

The CPU, chassis and thermal control fan headers are designated CPU FAN1, CPU FAN2, Overheat FAN and Chassis FAN. Refer to Table 5-13 for pin definitions.

Table 5-13
Fan Header Pin Definitions

Pin Number	Definition
1	Ground (black)
2	+12V (red)*
3	Tachometer

Caution: These fan headers are DC powered.

5-8 Jumper Settings

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose optional settings. Jumpers create shorts between two pins to change the function of the header. Pin 1 is identified with a square solder pad on the printed circuit board. See the motherboard layout pages for jumper locations.

Connector Pins

Jumper Cap

Setting

3 2 1

3 2 1

Pin 1-2 short
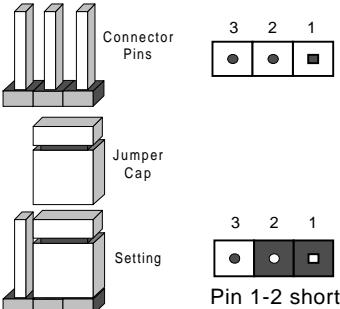
Front Side Bus Speed

The FSB speed is set with JP6 and JP7. Table 5-14 displays the settings for these two jumpers. The CPU speed can also be changed by software control in BIOS (see CPU Speed setting). The CPU Speed setting will show you the actual CPU speed for each FSB speed option selected.

Note: If the system does not reboot after changing the CPU speed, 1) clear CMOS and reboot (as described on the next page) and then set the correct CPU speed with the BIOS setting mentioned above.

Table 5-14
Front Side Bus Speed Jumper Settings
(JP6, JP7)

	Auto*	66 MHz	100 MHz	133 MHz
JP6	1-2	2-3	2-3	Open
JP7	1-2	2-3	Open	Open

Note: The Auto setting allows the CPU to set the speed.

CMOS Clear

Refer to Table 5-15 for instructions on how to clear CMOS. Always remove the AC power cord from the system before clearing CMOS. The BIOS' "System Setup" may need to be run after the CMOS is cleared -- select "Optimized Settings" and "Save and Exit" the BIOS setup. Please refer to Chapter 7.

Note: For an ATX power supply, you must completely shut down the system, remove the AC power cord, then use JBT1 to clear CMOS. Replace JBT1 back to the pin 1-2 position before powering up the system again. Do not use the PW_ON connector to clear CMOS.

Table 5-15
CMOS Clear Jumper Settings

Jumper Position	Definition
1-2	Normal
2-3	CMOS Clear

(JBT1)
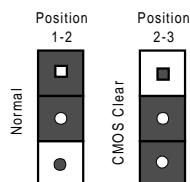
Keyboard Wake-Up

The JPWAKE jumper (JP2) is used together with the Keyboard Wake-Up function in BIOS. Enable both the jumper and the BIOS setting to allow the system to be awakened up by depressing a key on the keyboard. See Table 5-16 for jumper settings.

Note: Your power supply must meet ATX specification 2.01 or higher and supply 720 mA of standby power to use this feature.

Table 5-16
Keyboard Wake-Up
Jumper Settings (JPWAKE)

Jumper Position	Definition
1-2	Disabled
2-3	Enabled

SCSI Ch A/B Termination

The SCSICh A/B Termination jumpers (JPA1/2) enable both the jumper and the BIOS setting to allow SCSI devices to be terminated onboard. See Table 5-17 for jumper settings. The SCSI chain(s) must also be terminated at the SCSI cable end(s) away from the motherboard.

Table 5-17
SCSI Ch A/B Termination
Jumper Settings (JPA1/2)

Jumper Position	Definition
1-2	Disabled
2-3	Enabled

SCSI

The SCSI jumper (JP2) is used together with the Keyboard Wake-Up function in BIOS. Enable both the jumper and the BIOS setting to allow the system to be awakened up by depressing a key on the keyboard. See Table 5-18 for jumper settings.

Table 5-18
SCSI
Jumper Settings (JP2)

Jumper Position	Definition
1-2	Disabled
2-3	Enabled

VGA

The VGA jumper (JP3) is used to allow the system to utilize the onboard VGA. See Table 5-19 for jumper settings.

Table 5-19
VGA
Jumper Settings (JP3)

Jumper Position	Definition
1-2	Disabled
2-3	Enabled

Speaker

The Speaker jumper (JP8) is used to enable or disable the system speaker. See Table 5-20 for jumper settings.

Table 5-20
Speaker
Jumper Settings (JP8)

Jumper Position	Definition
1-2	Disabled
2-3	Enabled

VGA IRQ

The VGA IRQ jumper (JP10) is used to allow the the BIOS VGA IRQ selection. See Table 5-21 for jumper settings.

Table 5-21
VGA IRQ
Jumper Settings (JP10)

Jumper Position	Definition
1-2	Disabled
2-3	Enabled

LAN 1/2

The LAN 1/2 jumper (JPL1/2) is used to allow the system to enable or disable either, or both, of the LAN ports. See Table 5-22 for jumper settings.

Table 5-22
LAN 1/2
Jumper Settings (JPL1/2)

Jumper Position	Definition
1-2	Disabled
2-3	Enabled

5-9   Floppy, Parallel Port, and Hard Disk Drive Connections

Note the following when connecting the floppy and hard disk drive cables.

• The floppy disk drive cable has seven twisted wires.

• A red mark on a wire typically designates the location of pin 1.

• A single floppy disk drive ribbon cable has 34 wires and two connectors to provide for two floppy disk drives. The connector with twisted wires always connects to drive A, and the connector that does not have twisted wires always connects to drive B.

• The 80-wire ATA66/100 IDE hard disk drive cable that came with your system has two connectors to support two drives. This special cable should be used to take advantage of the speed this new technology offers. The blue connector connects to the onboard IDE connector inter-face and the other connector(s) to your hard drive(s). Consult the docu-mentation that came with your disk drive for details on actual jumper locations and settings for the hard disk drive.

Floppy Connector

The floppy connector is located on JP1. See Table 5-23 for pin definitions.

Table 5-23
Floppy Connector Pin Definitions

Pin Number	Function	Pin Number	Function
1	GND	2	FDHDIN
3	GND	4	Reserved
5	Key	6	FDEDIN
7	GND	8	Index-
9	GND	10	Motor Enable
11	GND	12	Drive Select B-
13	GND	14	Drive Select A-
15	GND	16	Motor Enable
17	GND	18	DIR-
19	GND	20	STEP-
21	GND	22	Write Data-
23	GND	24	Write Gate-
25	GND	26	Track 00-
27	GND	28	Write Protect-
29	GND	30	Read Data-
31	GND	32	Side 1 Select-
33	GND	34	Diskette

Parallel Port Connector

The parallel port is located on J15.
See Table 5-24 for pin definitions.

Table 5-24
Parallel (Printer) Port Pin Definitions
(J15)

Pin Number	Function	Pin Number	Function
1	Strobe-	2	Auto Feed-
3	Data Bit 0	4	Error-
5	Data Bit 1	6	Init-
7	Data Bit 2	8	SLCT IN-
9	Data Bit 3	10	GND
11	Data Bit 4	12	GND
13	Data Bit 5	14	GND
15	Data Bit 6	16	GND
17	Data Bit 7	18	GND
19	ACK	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	NC

IDE Connectors

There are no jumpers to config-
ure the onboard IDE interfaces
IDE1 and IDE2. Refer to Table
5-25 for pin definitions. You
must use the ATA100/66 cable
included with your system to
benefit from the ATA100/66
technology.

Table 5-25
IDE Connector Pin Definitions
(IDE1, IDE2)

Pin Number	Function	Pin Number	Function
1	Reset IDE	2	GND
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	GND	20	Key
21	DRQ3	22	GND
23	I/O Write-	24	GND
25	I/O Read-	26	GND
27	IOCHRDY	28	BALE
29	DACK3-	30	GND
31	IRQ14	32	IOCS16-
33	Addr 1	34	GND
35	Addr 0	36	Addr 2
37	Chip Select 0	38	Chip Select 1-
39	Activity	40	GND

Ultra160 SCSI Connector

Refer to Table 5-26 for pin definitions for the Ultra160 SCSI connectors located at JA1 and JA3. JA2 is a connector for external SCSI drives.

Table 5-26
68-pin Ultra160 SCSI Connectors (JA1, JA3, JA5)

Connector Contact Number	Signal Names	Connector Contact Number	Signal Names
1	+DB(12)	35	-DB(12)
2	+DB(13)	36	-DB(13)
3	+DB(14)	37	-DB(14)
4	+DB(15)	38	-DB(15)
5	+DB(P1)	39	-DB(P1)
6	+DB(0)	40	-DB(0)
7	+DB(1)	41	-DB(1)
8	+DB(2)	42	-DB(2)
9	+DB(3)	43	-DB(3)
10	+DB(4)	44	-DB(4)
11	+DB(5)	45	-DB(5)
12	+DB(6)	46	-DB(6)
13	+DB(7)	47	-DB(7)
14	+DB(P)	48	-DB(P)
15	GROUND	49	GROUND
16	DIFFSENS	50	GROUND
17	TERMPWR	51	TERMPWR
18	TERMPWR	52	TERMPWR
19	RESERVED	53	RESERVED
20	GROUND	54	GROUND
21	+ATN	55	-ATN
22	GROUND	56	GROUND
23	+BSY	57	-BSY
24	+ACK	58	-ACK
25	+RST	59	-RST
26	+MSG	60	-MSG
27	+SEL	61	-SEL
28	+C/D	62	-C/D
29	+REQ	63	-REQ
30	+I/O	64	-I/O
31	+DB(8)	65	-DB(8)
32	+DB(9)	66	-DB(9)
33	+DB(10)	67	-DB(10)
34	+DB(11)	68	-DB(11)

5-10 Installing Software Drivers

After all the hardware has been installed you must install the software drivers. The necessary drivers are all included on the Supermicro CD that came packaged with your motherboard. After inserting this CD into your CDROM drive, the display shown in Figure 5-6 should appear. (If this display does not appear, click on the My Computer icon and then on the icon representing your CDROM drive. Finally, double click on the "Setup" icon.)

Figure 5-6. Driver/Tool Installation Display Screen

Click the icons showing a hand writing on paper to view the readme files for each item. Click the tabs to the right of these *in order* *from top to bottom* to install each item one at a time. **After installing each item, you must reboot the system before moving on to the next item on the list.** The bottom icon with a CD on it allows you to view the entire contents of the CD.

NOTES

Chapter 6
Troubleshooting

6-1   Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the "Technical Support Procedures" and/or "Returning Merchandise for Service" section(s) in this chapter. **Note: Always disconnect the power cord before adding, changing or installing any hardware components.**

Before Power On

1. Make sure no short circuits exist between the motherboard and chassis.
2. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse.
3. Remove all add-on cards.
4. Install a CPU (making sure it is fully seated) and connect the chassis speaker and the power LED to the motherboard. (Check all jumper settings as well.)

No Power

1. Make sure no short circuits exist between the motherboard and the chassis.
2. Verify that all jumpers are set to their default positions.
3. Check that the 115V/230V switch on the power supply is properly set.
4. Turn the power switch on and off to test the system.
5. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.

No Video

1. If the power is on but you have no video, remove all the add-on cards and cables.
2. Use the speaker to determine if any beep codes exist. Refer to Appendix A for details on beep codes.

NOTE
If you are a system integrator, VAR or OEM, a POST diagnostics card is recommended. For I/O port 80h codes, refer to App. B.

Memory Errors

1. Make sure the DIMM modules are properly and fully installed for the amount of memory desired.
2. Determine if different speeds of DIMMs have been installed and verify that the BIOS setup is configured for the fastest speed of memory used. Do not mix memory speeds.
3. For DIMMs, make sure you are using PC1600 (200 MHz) or PC2100 (266 MHz) compliant DDR-RAM.
4. Check for bad DIMM modules or slots by swapping modules between slots and noting the results.
5. Make sure all memory modules are fully seated in their slots.

6-2   Technical Support Procedures

Before contacting Technical Support, please take the following steps. Also, note that as a motherboard manufacturer, Supermicro does not sell directly to end-users, so it is best to first check with your distributor or reseller for troubleshooting services. They should know of any possible problem(s) with the specific system configuration that was sold to you.

1. Please go through the 'Troubleshooting Procedures' and 'Frequently Asked Question' (FAQ) sections in this chapter or see the FAQs on our web site (http://www.supermicro.com/techsupport.htm) before contacting Technical Support.
2. BIOS upgrades can be downloaded from our web site at: http://www.supermicro.com/techsupport/download.htm.

Note: Not all BIOS can be flashed depending on the modifications to the boot block code.

3. If you still cannot resolve the problem, include the following information when contacting Supermicro for technical support:
   • Motherboard model and PCB revision number
   • BIOS release date/version (this can be seen on the initial display when your system first boots up)
   • System configuration
   An example of a Technical Support form is on our web site at
   < http://www.supermicro.com/techsupport/contact_support.htm >.

4. Distributors: For immediate assistance, please have your account number ready when placing a call to our technical support department. We can be reached by e-mail at < support@supermicro.com > or by fax at (408) 503-8019.

6-3   Frequently Asked Questions

Question: What are the various types of memory that the P3TDDR motherboard can support?

Answer: The P3TDDR has four DIMM slots that support up to 4 GB of ECC registered PC266/200 DDR-RAM. Please refer to Chapter 5 for additional information.

Question: How do I update my BIOS?

Answer: It is recommended that you **do not** upgrade your BIOS if you are not experiencing problems with your system. Updated BIOS files are located on our web site at < http://www.supermicro.com >. Please check our BIOS warning message and the information on how to update your BIOS on our web site. Also, check the current BIOS revision and make sure it is newer than your current BIOS before downloading. Select your motherboard model and download the BIOS file to your computer. Unzip the BIOS update file and you will find the readme.txt (flash instructions), the awdflash.exe (BIOS flash utility) and the BIOS image (xxxx.bin) files. Copy these files onto a bootable floppy and reboot your system. It is not necessary to set BIOS boot block protection jumpers on the motherboard. At the DOS prompt, enter the command "awdflash." Type in the BIOS file that you want to update (xxxx.bin).

Question: After flashing the BIOS my system does not have video. How can I correct this?

Answer: If the system does not have video after flashing your new BIOS, it indicates that the flashing procedure failed. To remedy this, first clear CMOS per the instructions in this manual and retry the BIOS flashing procedure. If you still do not have video, please use the following **BIOS Recovery Procedure**. First, make sure the JPWAKE jumper is disabled. Then, turn your system off and place the floppy disk with the saved BIOS image file (see above FAQ) in drive A. Press and hold <Alt> and <F2> at the same time, then turn on the power with these keys pressed until your floppy drive starts reading. Your screen will remain blank until the BIOS program is done. If the system reboots correctly, then the recovery was successful. The **BIOS Recovery Procedure** will not update the boot block in your BIOS.

Question: Do I need the CD that came with my motherboard?

Answer: The supplied compact disc has quite a few drivers and programs that will greatly enhance your system. We recommend that you review the CD and install the applications you need. Applications on the CD include VIA Pro 266T chipset drivers for Windows plus security and audio drivers.

Question: Why can't I turn off the power using the momentary power on/off switch?

Answer: The instant power off function is controlled in BIOS by the "Power Button Mode" setting. When the "On/Off" feature is enabled, the motherboard will have instant off capabilities as long as the BIOS has control of the system. When the "Standby" or "Suspend" feature is enabled or when the BIOS is not in control such as during memory count (the first screen that appears when the system is turned on), the momentary On/Off switch must be held for more than four seconds to shut down the system. This feature is required to implement the ACPI features on the motherboard.

Table 3-1.   Shared IRQs

P3TDDR

PCI 1 shares one IRQ with onboard SCSI and onboard AGP
PCI 2 shares one IRQ with onboard SCSI
PCI 3 shares one IRQ with onboard LAN1 and SCSI-RAID
     (Note: If SCSI-RAID option is used, then PCI 3 slot is <u>unavailable</u>.)

Question: I installed my microphone correctly but I can't record any sound. What should I do?

Answer: Go to <Start>, <Programs>, <Accessories>, <Entertainment> and then <Volume Control>. Under the "Properties" tab, scroll down the list of devices in the menu and check the box beside "Microphone".

Question: How do I connect the ATA66/100 cable to my IDE device(s)?

Answer: The 80-wire/40-pin ATA66/100 IDE cable that came with your system has two connectors to support two drives. This special cable must be used to take advantage of the speed the ATA66/100 technology offers. Connect the blue connector to the onboard IDE header and the other connector(s) to your hard drive(s). Consult the documentation that came with your disk drive for details on actual jumper locations and settings.

6-4   Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

The warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alternation, misuse, abuse or improper maintenance of products. During the warranty period, contact your distributor first for any product problems.

NOTES

Chapter 7
BIOS

7-1   Introduction

This chapter describes the Award BIOS for the P3TDDR. The Award ROM BIOS is stored in a Flash chip and can be easily upgraded using a floppy disk-based program.

Note: Due to periodic changes to the BIOS, some settings may have been added or deleted and might not yet be recorded in this manual. Please refer to the Manual Download area of the Supermicro web site < http://www.supermicro.com > for any changes to BIOS that may not be reflected in this manual.

System BIOS

The BIOS is the Basic Input Output System used in all IBM® PC, XT™, AT®, and PS/2® compatible computers. The AwardBIOS flash chip stores the system parameters, such type of disk drives, video displays, etc. in the CMOS. The CMOS memory requires very little electrical power. When the computer is turned off, a back-up battery provides power to the BIOS flash chip, enabling it to retain system parameters. Each time the computer is powered-on the computer is configured with the values stored in the BIOS ROM by the system BIOS, which gains control at boot-up.

How To Change the Configuration Data

The CMOS information that determines the system parameters may be changed by entering the BIOS Setup utility. This Setup utility can be accessed by pressing the <Delete> key at the appropriate time during system boot, see below.

Starting the Setup Utility

Normally, the only visible POST (Power On Self Test) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the BIOS Setup utility. From the main menu, you can access the other setup screens, such as the Chipset and Power menus. Section 4-3 gives detailed descriptions of each parameter setting in the Setup utility.

7-2   Running Setup

Optimal default settings are in bold text unless otherwise noted.

The BIOS setup options described in this section are selected by choosing the appropriate text from the Main BIOS Setup screen. All displayed text is described in this section, although the screen display is often all you need to understand how to set the options (see on next page).

When you first power on the computer, the AwardBIOS™ is immediately activated.

While the BIOS is in control, the Setup program can be activated in one of two ways:

1.   By pressing <Delete> immediately after turning the system on, or
2.   When the message shown below appears briefly at the bottom of the screen during the POST (Power On Self-Test), press the <Delete> key to activate the Main Setup Menu:

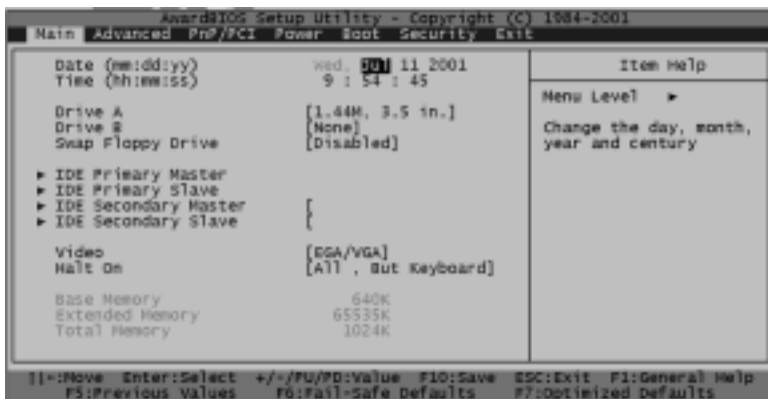**Press the <Delete> key to enter SETUP**

7-3   Main BIOS Setup

All Main Setup options are described in this section. The Main BIOS Setup screeen is displayed below.

Use the Up/Down arrow keys or the <Tab> key to move among the different settings in the above menu.

Press the <ESC> key to exit theCMOS Setup Menu and use the Left/Right arrow keys to enter other categories of BIOS settings. The next section describes in detail how to navigate through the menus.

7-4   Main BIOS Setup Menu

7.4.1   Main Setup Features

[Date]

Key in the correct information in the fields when the options of "Month", "DD", and "YYYY" appear in the screen. Press the <Enter> key to save the data.

[Time]

Set the system date and time. Key in the correct information in the fields when the options of "HH", "MM", and "SS" appear in the screen. Press the <Enter> key to save the data.

[Drive A/Drive B]

These options allow the user to set the type of floppy disk drive installed in the system. The settings are: "None", "360K, 5.25in", "1.2M, 5.25in", "720K, 3.5in", "1.44M, 3.5in", "2.88M, 3.5in." The default setting is "**1.44M, 3.5in**" for   Drive A and "**None**" for Drive B.

[Swap Floppy Drive]

These options allow the user to swap the names of floppy disk drives installed in the system, should there betwo floppy disk drives installed on the main board. The settings are: "Disabled" and "Enabled." The default setting is "**Disabled.**"

[IDE Primary Master/IDE Primary Slave/IDE Secondary Master/IDE Secondary Slave]

These options allow the user to set the parameters of the IDE Primary Master/Slave and IDE Secondary Master/Slave slots. Hit <Enter> to activate the following sub-menu screen for detailed options of these items. Set the correct configurations accordingly. The items included in the sub-menu are:
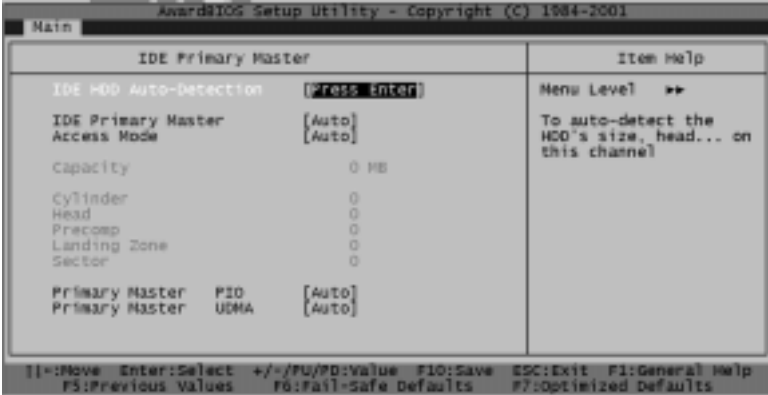
[IDE Primary Master]

This option allows the user to determine the manner in which the AwardBIOS sets the settings for the IDE Primary Master Device. The settings are "None", "Auto", and "Manual."   The default setting is "**Auto**."

[Access Mode]

This item determines the location through which the AwardBIOS access the IDE Primary Master Device. The settings are "CHS", "LBA", "Large", "Auto." The default setting is "**Auto**."

[IDE Primary Master UDMA / IDE Primary Slave UDMA /
IDE Secondary Master UDMA / IDE Secondary Slave UDMA]

This option is available only when your IDE hard drive supports Ultra DMA/33 and the operating environment also includes a DMA drive (Windows 95 OSR2 or a third-party IDE bus master driver).   If your IDE hard drive and your system software both support Ultra DMA/33, select "Auto" to enable BIOS support. The settings are "Auto", and "Disabled". The default setting is "**Auto**."

7-5   Advanced BIOS Setup

Choose Advanced BIOS Setup from the Award BIOS Setup Utility main menu
with the Left/Right arrow keys.   You should see the following display. Select
one of the items in the left frame of the screen to go to the sub screen for that
item. Advanced BIOS Setup options are displayed by highlighting the option
using the arrow keys. All Advanced BIOS Setup options are described in this
section.

7-5.1   Advanced BIOS Features

When the required item in the "Advanced BIOS Features" is
highlighted, press the <Enter> key to activate the selection, as
shown below:
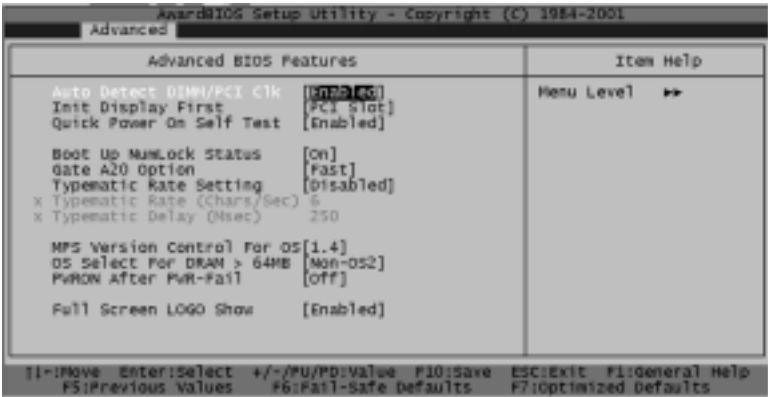
[Auto Detect DIMM/PCI CLK]

If enabled, this feature will allow the BIOS automatically to detect the status of the DIMM/PCI clock. The settings are "Enabled" and "Disabled." The default setting is "Enabled."

[Init Display First]

This option allows the user to determine which device will be first displayed when the sytem boots up -- whether it is the device installed in the PCI slot or the device intalled in the AGP slot. The settings are "PCI slot" and "AGP.." The default setting is "AGP."

[Quick Power-On Self Test]

If enabled, this feature will speed up the process of POST (Power On Self Test) after the computer is switched on. The settings are "Enabled" and "Disabled." If "Disabled", the process of POST will remain in the normal speed. The default setting is "Disabled."

[Boot Up NumLock Status]

This option enables the system to check the Status of the NumLock key during boot-up. The settings are "On" and "Off." The default setting is "On."

[Gate A20 Option]

This option allows the user to determine if the chipset or the keyboard controller should have the control over Gate A20. The settings are "Normal" or "Fast." If set to "Normal", a pin in the keyboard controller controls Gate A20. If "Fast" is selected, the chipset will have the control over Gate A20. The default setting is "Fast."

[Typematic Rate Setting]

Key strokes repeat at a rate pre-determined by the keyboard controller. The key stroke repeating rate is called the typematic rate. If "Enabled", this option allows the user to set the "Typematic Rate" of the system. If "Disabled", the user will not be allowed to set the "Typematic Rate." When disabled, "Typematic Rate" and "Typematic Delay" will not be displayed. The settings are "Enabled" and "Disabled." The default setting is "Disabled."

[Typematic Rate (Chars/Sec)]

If enabled, the option allows the user to set the number of times a key
stroke repeats itself in a second when the key is held down. The settings
are: "6", "8", "10", "12", "15", "20", "24", and "30." The default setting is
"6."

[Typematic Delay]

The option sets the delay time after a key is held down before it
begins to repeat the keystroke. The settings are: "250", "500", "750",
"1000." The default setting is "250."

[MPS Version Control for OS]

This option sets the modes of the MPS Version Control for the operating
system. The settings are "1.4" and "1.1." The default setting is "1.4."

[OS Select For DRAM> 64MB]

The option allows the user to select the operating system that requires a
DRAM memory greater than 64MB in order to function properly. The
settings are "OS2", and "Non OS2." The default setting is "Non OS2."

[Power On after PWR Fail]

This option allows the user to determine if the system's power will be
automatically turned "on" or remains "off" after a power failure. The settings
are "On", "Off" and "Former Status." The default setting is "Off"."

7-5.2   Advanced Chipset Features
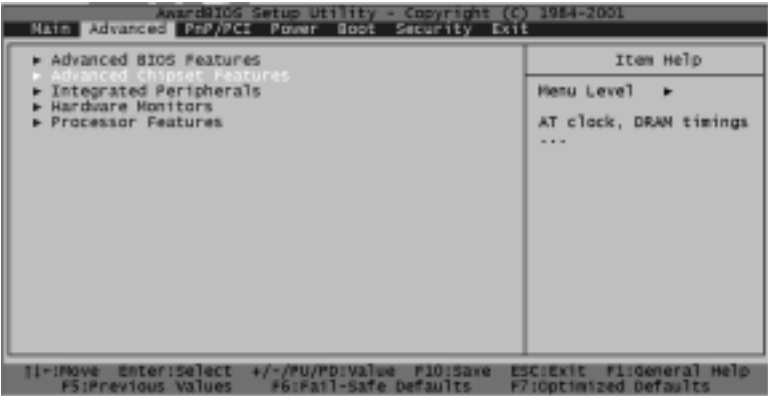
This section documents the functionality that the AwardBIOS provides the user in configuring the system based upon the special features offered by the VIA Apollo 266 chipset. The VIA Apollo 266 chipset manages the operations of major components of the board, such as the bus speed of the CPU, the access to the memory and the communication between the PCI slots and the CPU. Normally, the default settings for the Advanced Chipset Features listed in the section are pre-configured by the manufacturer for the optimal performance of the system. It is not recommended that the user alter the default settings. This section is provided as an emergency measure for the user to restore the functions of the system when the critical data stored in the BIOS is lost.

When the item in "Advanced Chipset Features" is highlighted, hit the <Enter> key to activate the screen below:
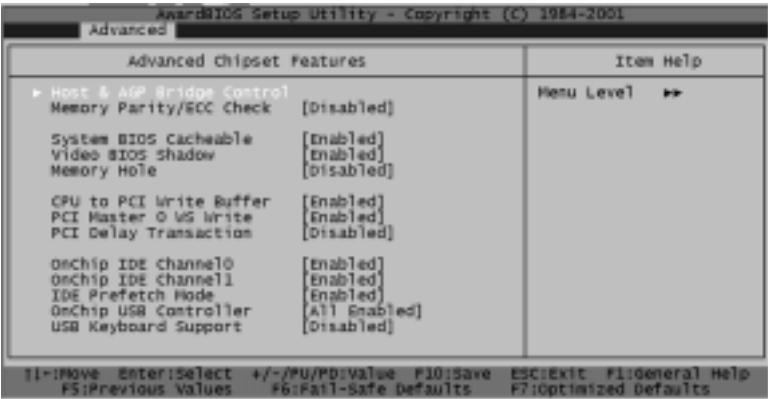
[Host & AGP Bridge Control]

This section documents the AwardBIOS management of the bus links between host and bridge devices.

[Memory Parity / ECC Check]

"Enabled" adds a parity check to the boot-up memory tests. Select "Enabled" only if the system DRAM contains parity.

[System BIOS Cacheable]

If enabled, the system BIOS information stored in the BIOS ROM (Read Only Memory) chip will be written and temporarily stored in the "cacheable" section of the memory, so the CPU has faster access to the information. The settings are: "Enabled" or "Disabled." The default setting is "**Enabled**."

[Video BIOS Cacheable]

If enabled, the Video BIOS information stored in the BIOS ROM (Read Only Memory) chip will be written and temporarily stored in the "cacheable" section of the memory to provide faster access to the information. The settings are: "Enabled" or "Disabled." The default setting is "**Enabled**."

[Memory Hole]

To improve the performance of the sytem, a certain section of the memory will be reserved for the use of the devices installed in the PCI slots. This section of memory must be mapped into the memory space below 16MB. The settings are: "15M-16M" or "Disabled." The default setting is "**Disabled**."

[CPU to PCI Write Buffer]

To improve the performance of the system, a certain section of the memory will be designated as "Write Buffer" to temporarily store the data CPU writes to PCI to provide faster access. This information can be exe.codes or operational instructions for the system . The settings are: "Enabled" or "Disabled." The default setting is "**Enabled**."

[PCI Master 0 WS Write]

If "enabled", the transimission of PCI Master Write PCI Master Write signals will have no delays. The settings are: "Enabled" or "Disabled." The default setting is "**Enabled**."

[PCI Delayed Transition]

If "enabled", the PCI signal transition will be delayed. The settings are: "Enabled" or "Disabled." The default setting is "**Disabled**."

[On-Chip IDE Channel 10/11]

If "enabled", the BIOS support of onchip IDE 10/11 will be activated. The settings are: "Enabled" or "Disabled." The default setting is "**Enabled**."

[IDE Prefetch Mode]

If "enabled", the function of IDE Prefetch Mode will be activated. The settings are: "Enabled" or "Disabled." The default setting is "**Enabled**."

[On-Chip USB Controller]

If enabled, this option will allow the user to acctivate the BIOS support of On-Chip USB Controllers.   The settings are: "All Disabled", "All Enabled", "1&2 USB Ports", "2&3 USB Ports", "1 USB Port", "2 USB Port", and "3USB port." The default setting is "**All Enabled**."
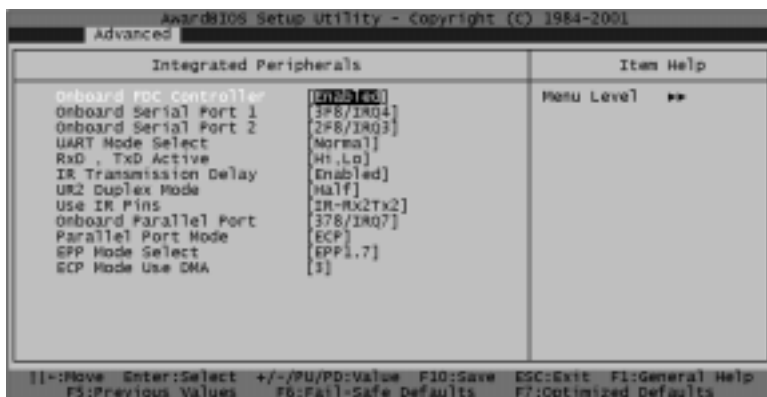
[USB Keyboard Support]

If enabled, this option allows the user to activate the BIOS support of the On-Chip USB Keyboard Controller.   The settings are: "Disabled", and "Enabled." The default setting is "**Disabled**."

7-5.3   Integrated Peripherals
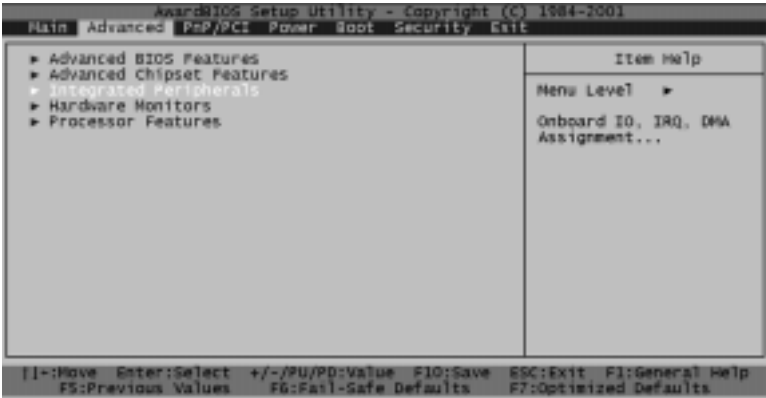
When the item "Integrated Peripherals" is highlighted, press the <Enter> key to activate   the following sub-menu screen:

When the above menu appears, select the items and press the <Enter> key to display the options:

[Onboard FDC controller]

Select "Enabled", if your system has a floppy disk controller (FDC) installed on the main board and you wish to use it. The settings are "Enabled" and "Disabled." The default setting is "**Enabled**."

[Onboard Serial Port 1/Port 2]

This option allows the user to set the address and the corresponding IRQ for the Serial Port1 and Serial Port 2.   The settings are "Disabled" , "3F8/IRQ4", "2F8/IRQ3", "3E8/IRQ4", "2E8/IRQ3", and "Auto ." The default setting for Serial Port1 is "3F8/IRQ4" and the defualt for Port 2 is is "**2F8/IRQ3**."

[UART Mode Select]

This option allows the user to select the UART mode for BIOS. The settings are "IrDA", "ASKIR", and "Normal". The default setting is "**Normal**".

[RxD, TxD Active]

This option allows the user to set the settings for the function of "RxD, TxD Active." The settings are "Hi, Hi", "Hi, Lo", "Lo, Hi", and "Lo, Lo." The default setting is "**Hi, Lo**."

[IR Transmission Delay]

If "Enabled", the transmssion of IR (Infra-Red) Signals will be delayed.   The settings are "Enabled" and "Disabled." The default setting is "**Enabled**."

[UR2 Duplex Mode]

The option set the mode for the UR2 Duplex Mode. The settings are "Full" and "Half." The default setting is "**Half**."

[Use IR Pins]

This item sets the mode for Use IR Pins. The settings are "RxD2, TxD2" and "IR-Rx2Tx2." The default setting is "**IR-Rx2Tx2**."

[Onboard Parallel Port]

This option allows the user to set the address and the corresponding IRQ for the onboard parallel port.   The settings are "Disabled" , "378/IRQ7", "278/IRQ5", and "3BC/IRQ7." The default setting for the parallel port is "**378/IRQ7**."

[Parallel Port Mode]

This option set the mode for the onboard Parallel port.   The settings are "SPP" , "EPP", "ECP", and "ECP+EPP." The default setting is "**ECP**."
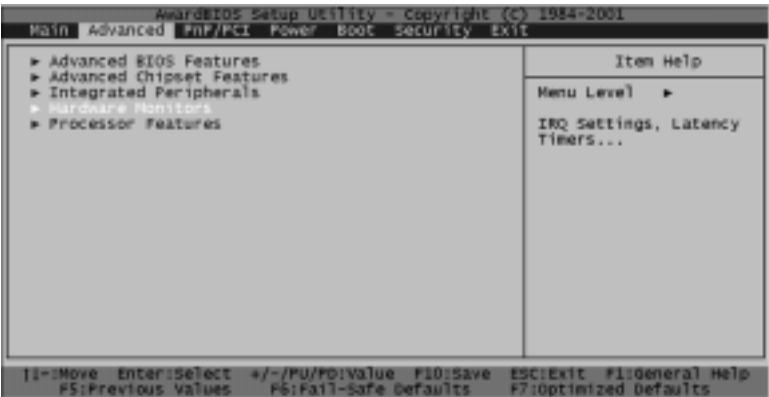
[EPP Mode Select]

This option allows the user to select the EPP mode.   The settings are "EPP 1.9" and "EPP 1.7." The default setting is "**EPP 1.7** ."
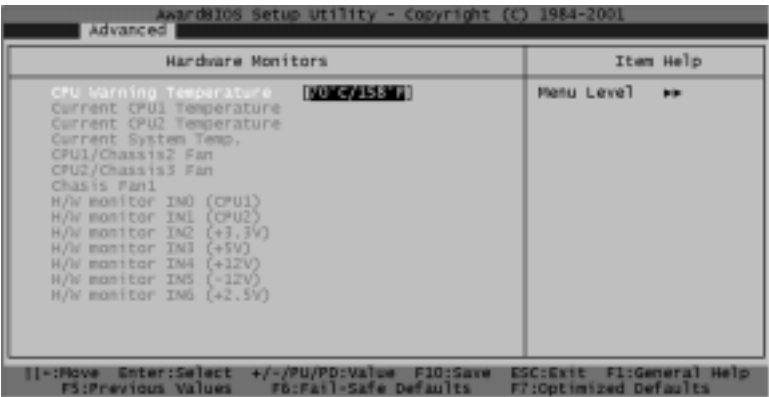
[ECP Mode Use DMA]

This option allows the user to select the ECP use DMA mode.   The settings are "1" and "3."   The default setting is "3 ."

7-5.4   Hardware Monitors

When the item "Hardware Monitors" is highlighted, press the <Enter> key to activate the sub-menu of "Hardware Monitors". The "Hardware Monitors" sub-menu screen is shown below:

[CPU Warning Temperatures]

This item allows the user to set the CPU temperature threshold. When the CPU temperature reaches the threshold temperature set by the user, the alarm will be set off and a warning message will be displayed on the screen.   The settings are   "Disabled", "50°C/122°F","55°C/131°F" "60°C/140°F", "65°C/149°F","70°C/158°F","75°C/167°F", and "80°C/176°F." The default setting is"**70°C/158°F**."

7-5.5   Processor Features
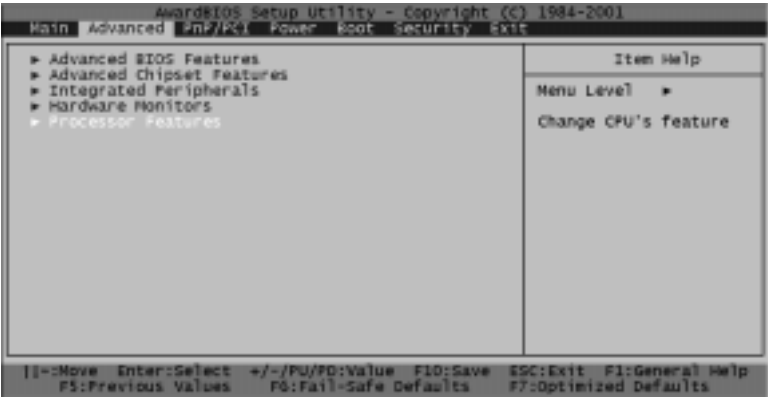
When the item "Processor Features" is highlighted, press the <Enter> key to activate the sub-menu of "Processor Features" listed below:
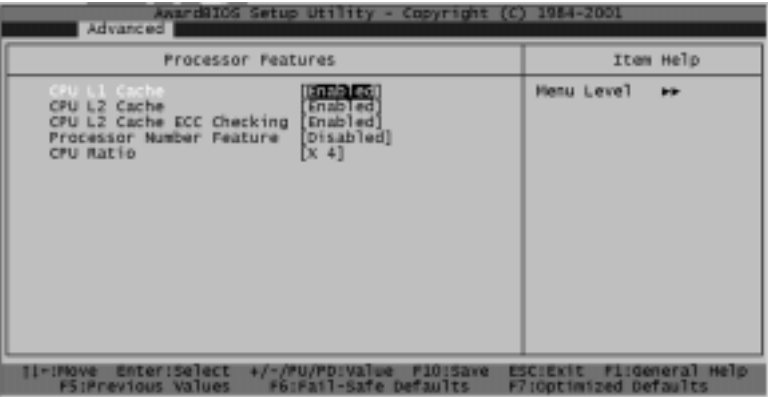
[CPU L1 & L2 Cache]

Set this option to "Enable" to activate the function of CPU L1 and L2 cache. The settings are "Disabled", and "Enabled."   The default setting is "**Enabled**."

[CPU L2 Cache ECC Checking]

Set this option to "Enable" to activate the function of CPU L2 CacheECC Checking.   The settings are "Disabled" and "Enabled." The default setting is "**Enabled**."

[Processor Number Feature]

Set this option to "Enable" to activate the function of the CPU identification
number being made available to applications and potentially reported.   The
settings are "Disabled" and "Enabled." The default setting is "**Disabled**."

[CPU Ratio]

This option allows the user to set the CPU clock:FSB speed ratio. The
settings are "x3", "x3.5", "x4","x4.5", "x5", "x5.5","x6", "x6.5", "x7",
"x7.5", "x8", "x9", "x9.5", "x10", "x10.5", "x12", "x13", "x14",
"x15", and "x16."   The default setting is "x4."

7-6   PnP/PCI Configurations

When the Item "PnP/PCI" is highlighted on the main menu bar, press
the <Enter> key to activate the following screen:

[PCI Slot 1/2/3 IRQ Select]

This feature allows the user to determine the PCI interrupts or allows the
system to make such a determination. The setting options are: Auto", "3",
"4", "5', "7", "9", "10", and "11.". The default setting is"**Auto**."

[USB and LAN2 IRQ Select]

This feature allows the user to determine the PCI interrupts or allows the
system to make such a determination. The setting options are: Auto", "3",
"4", "5', "7", "9", "10", and "11.". The default setting is"**Auto**."

[PNP OS Installed]

Select "Yes" if you are using an operating system that supports the plug and play solution. Select "No" if you need the BIOS to configure non-boot devices. The settings are "Yes" and "No." The default setting is "**No**."

[Reset Configuration Data]

If you have installed a new add-on device and this add-on device has caused conflicts in system configuration and has resulted in system boot-up failure, then, select "Enabled" to reset "Extended System Configuration Data" (ESCD) for the OS to reboot the system. The settings are "Enabled" and "Disabled." The default setting is "**Disabled**."

[Resources Controlled By]

The Award BIOS can automatically configure all the boot devices and all Plug and Play compatible devices. However, if this item is set to "Auto (ESCD)", the user is not able to set the IRQ DMA and memory address, since the Award BIOS will automatically assign the values to these fields. The settings are "AUTO (ESCD)" and "Manual." The default setting is "AUTO (ESCD)."

[PCI/VGA Palette Snoop]

For best performance of the system, this item has been pre-set to "Disabled" by the manufacturer. The settings are "Enabled" and "Disabled." The default setting is "**Disabled**."

[Assign IRQ for VGA]

If "Enabled", the item allows the AwardBIOS to assign an IRQ for the VGA devices. The settings are "Enabled" and "Disabled." The default setting is "**Enabled**."

[Assign IRQ for USB]
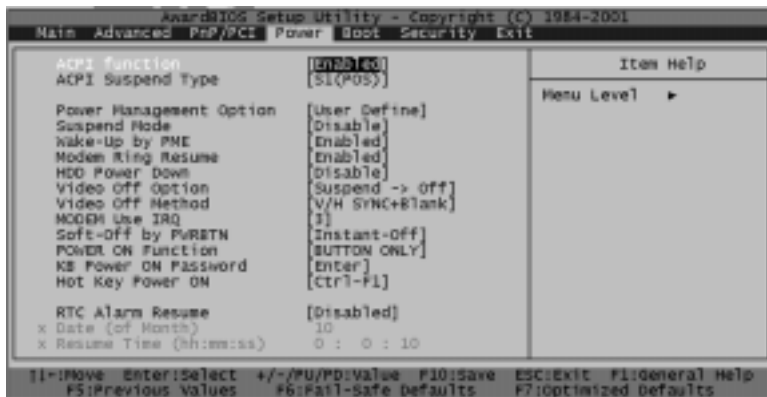
If "Enabled", the item allows the AwardBIOS to assign IRQ for the USB devices. The settings are "Enabled" and "Disabled." The default setting is "**Enabled**."

7-7   Power Management

When the Item "Power" is highlighted on the main menu bar, hit the <Enter> key to activate the following screen:

[ACPI Function]

This item allows you to enable and disable the function of Advanced Configuration and Power Management. The settings are "Enabled" and "Disabled." The default setting is "**Enabled**."

[ACPI Suspend Type]

This item allows the user to determine the ACPI Suspend type.   The settings are "S1 (POS)", and "S3 (STR)." The default setting is "S1 (POS)."

[Power Management Option]

This option sets the degree of power saving for the system, especially for HDD Power Down, Doze Mode and Suspend Mode. The settings are "User Define", "Min Saving", and "Max Saving."   The default setting is "**User Define.**"

[Suspend Mode]

This item sets the system suspend Mode. The settings are "Disabled", "1 Min", "2 Min", "4 Min", "6 Min", "8 Min", "10 Min", and "20 Min." The default setting is "**Disabled**."

[Wake-Up by PME]

If "Enabled", the user is able to "wake up" the system by the Power
Management Event. The settings are "Enabled" and "Disabled." The default
setting is "**Enabled**."

[Modem Ring Resume]

Select "Enabled" to allow the BIOS to activate the function of Modem Ring
Resume. The settings are "Enabled" and "Disabled." The default setting is
"**Enabled**."

[HDD Power Down]

If "Enabled", this option will allow the AwardBIOS to power-down the hard
disk drive. The settings are "Disabled", "1 min", "2 min", "3 min", "4 min", "5
min", "6 min", and "7 min." The default setting is "**Disabled**."

Video Off Option]

This option sets the status of video device and monitor when the system is
in the Suspend Mode. When the option is set to "Always On", the video
device and the monitor will always be on when the system is in the suspend
mode. When the option is set to "Suspend-off", the video device and the
monitor will be turned off when the system is in the suspend mode. The
settings are "Suspend-off" and "Always On". The default setting "**Suspend
-> Off**".

[Video Off Method]

This item determines the manner in which the monitor is turned off.   The
settings are "Blank Screen", "V/H SYNC+Blank", and "DPMS". Select the
"V/H SYNC+Blank" to turn off the vertical and horizontal synchronization
ports and the monitor. Select "Blank Screen" to turn off the video buffer and
the monitor. Select "DPMS" to initiate display power management signals.
The default setting is "**V/H SYNC+Blank**."

[Modem Use IRQ]

This item allows the AwardBIOS to assign the IRQ to be used by the Modem.
The settings are: "NA", "3", "4", "5", "7", "9", "10", and "11." The default
setting is "3."

[Soft-off by PWR-BTTN]

This item determines the system's "Soft-off" mode when the user presses the power-button. The settings are "Instant-off" and "Delay 4 Sec." The default setting is "**Instant-off**."

[POWER ON Function]

The option allows the user to determine the method by which the system activates the power on function. The settings are "Password", "Hot Key", "Mouse Left", "Mouse Right", "Any key", "Button Only", and "Keyboard 98." The default setting is "**Button Only**."

[KB Power On Password]

This item allows the user to set the password to activate the power on function through keyboard. Press the <Enter> key to enter the password.

[Hot Key Power On]

This option allows the user to set the hot key to activate the power on function. The settings are "Ctrl F1", "Ctrl F2", "Ctrl F3", "Ctrl F4", "Ctrl F5", "Ctrl F6", "Ctrl F7", "Ctrl F8", "Ctrl F9","Ctrl F10", "Ctrl F11", and "Ctrl F12." The default setting is "**Ctrl F1**."

[RTC Alarm Resume]

If "Enabled", this option will allow the AwardBIOS to resume the RTC (Real Time Clock) Alarm activities. The default settings are "Enabled" and "Disabled." The default setting is "**Disabled**."

7-8   Boot-up Devices

When the Item "Boot" is highlighted on the main menu bar, hit the <Enter> key to activate the following screen:
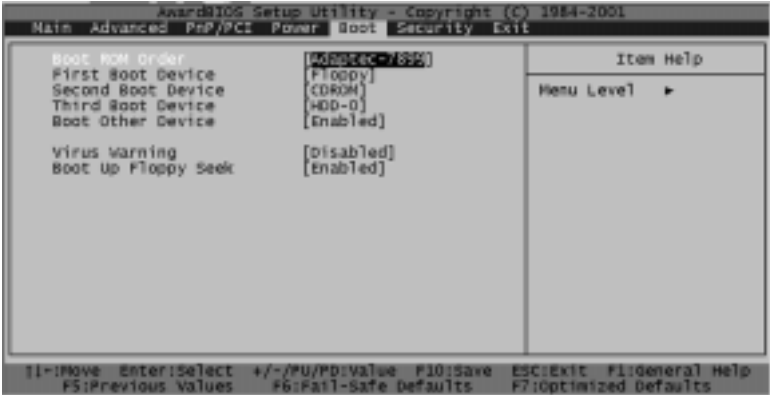
Award BIOS attempts to load the operating system from devices specified by the users in a user-specified sequence.

[Boot ROM Order]

This item allows the user to set the order of the t boot-up devices. The settings are "Adaptec-7899" and "Any PCI Slot." The default setting is "**Adaptec-7899**."

[First Boot Device]

This item allows the user to set the device as the first boot-up device. The settings are "Floppy", "LS120", "HDD-0", "SCSI", "CDROM", "HDD-1", "HDD-2", "HDD-3", "ZIP100", "LAN", and "Disabled".." The default setting is "**Floppy**."

[Second Boot Device]

This item allows the user to set the device as the second boot-up device. The settings are The settings are "Floppy", "LS120", "HDD-0", "SCSI", "CDROM", "HDD-1", "HDD-2", "HDD-3", "ZIP100", "LAN", and "Disabled." The default setting is "**CDROM**."

[Third Boot Device]

This item allows the user to set the device as the first boot-up device. The settings are "Floppy", "LS120", "HDD-0", "SCSI", "CDROM", "HDD-1", "HDD-2", "HDD-3", "ZIP100", "LAN", and "Disabled".." The default setting is "**HDD-0**."

[Boot Other Device]

If enabled, this option enables the BIOS to load the OS from another device rather than the ones that have been specified as the first, second, and third boot up devices. The settings are "Enabled" and "Disabled." The default setting is "**Enabled**."

[Virus Warning]

This item allows the user to choose the VIRUS Warning feature for the IDE Hard Drive Disk boot sector protection. If this function is enabled and someone attempts to write data into this area, then, the BIOS will display a warning message and the udible alarm will be activated. The settings are "Enabled" and "Disabled." The default setting is "**Disabled**."

[Boot Up Floppy Seek]

Set this option to "Enabled" to allow the BIOS to test floppy drives to determine whether they have 40 tracks or 80 tracks. The settings are "Enabled" or "Disabled." The default setting is "**Enabled**."

7-9   Security Setup

When the Item "Security" is highlighted on the main menu bar, press the <Enter> key to activate the following screen:

[Set   Supervisor's   Password]

When the item "Set Supervisor Password" is highlighted on the above screen, hit the <Enter> key to activate the following screen. When prompted, type in Supervisor's password in the dialogue box to set or to change Supervisor's Password.

[Set   User's   Password]

When the item "Set User's Password" is highlighted on the Security Main Menu, hit the <Enter> key to activate the following screen. When prompted, type in User's password in the dialogue box to set or to change the User's Password.

[Security Option]

When the item "Security Option" is highlighted on the Security Main Menu, hit the <Enter> key to activate the screen shown below.

This option allows the user to determine if the password is required every time when the system boots up or if the password is required only when you enter the CMOS setup. The settings are "System" and "Setup." The default setting is "Setup."

7-10 Exit Setup

Select "Exit" from the Main Menu bar and press the <Enter> key to activate the following screen:

When the item "Save & Exit" is highlighted, press the <Enter> key to activate the following sub-screen.
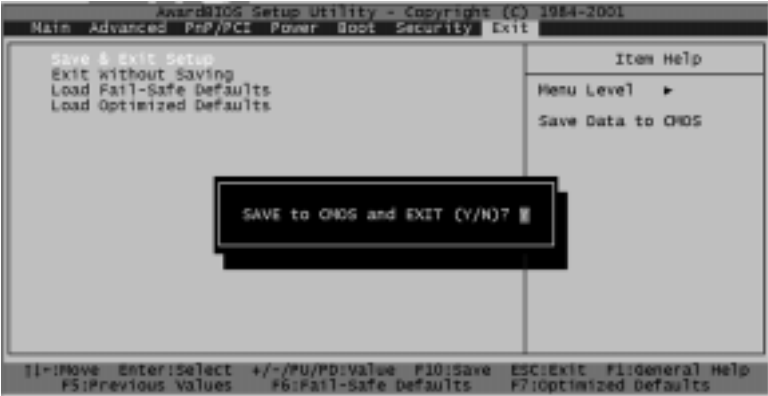
[Save & Exit Setup]

If you highlight the letter "Y" and press <Enter> when the above screen appears, you will save the changes you've made in the BIOS program (CMOS) and exit. Your system should, then, continue with the boot-up procedure. The options are "Y", and "N**."** The default setting is "Y**."**
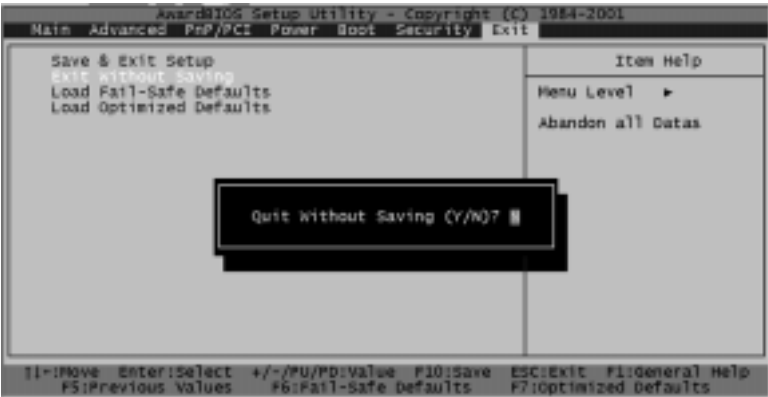
[Exit without Saving]

If you highlight the letter "Y" and press <Enter> when the above "Exit without Saving" screen appears, all the changes you've made in the CMOS will not be saved when you exit the CMOS Setup. Your system should then continue with the boot-up procedure. The default setting is "**N**."

[Load Fail-Safe Defaults]

When the item "Load Fail Safe Defaults" is highlighted, press the <Enter> key to activate the following screen:
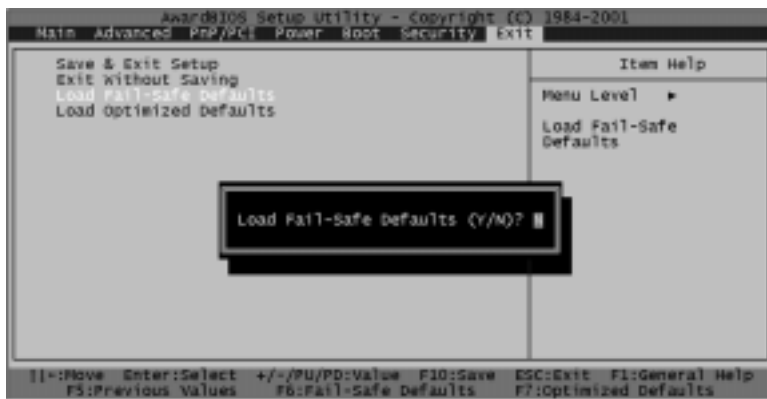
When the dialogue box appears in the above screen, press the key "Y" to load the BIOS Fail-Safe default values for the most stable system operation. The settings are "Y" and "N." The default setting is "N."

[Load Optimal Defaults]

When the dialogue box appears in the above screen, press the key "Y" to load the default values for the optimal system performance. The settings are "Y" and "N." The default setting is "N."

NOTES

Appendix A: Award BIOS POST Messages

During the Power On Self-Test (POST), if the BIOS detects an error and correction is needed, then, the BIOS will activate the alarm or display a message.

If a message is displayed, it will be accompanied by the following:

PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

POST Beep

Currently, there are two kinds of beep codes in the Award BIOS. This code indicates that a video error has occurred and that the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps. The other code indicates that your Rambus error has occurred. This beep code consists of a single long beep repeatedly.

Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list includes messages for both the ISA and the EISA BIOS.

CMOS BATTERY HAS FAILED

CMOS battery is no longer functional. It should be replaced.

CMOS CHECKSUM ERROR

Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER

No boot device was found. This could mean that either a boot drive was not detected or the drive does not contain proper system boot files. Insert a system disk into Drive A: and press <Enter>. If you assumed the system would boot from the hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also be sure the disk is formatted as a boot device. Then reboot the system.

DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP

Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly.

DISPLAY SWITCH IS SET INCORRECTLY

Display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection.

DISPLAY TYPE HAS CHANGED SINCE LAST BOOT

Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.

ERROR ENCOUNTERED INITIALIZING HARD DRIVE

Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

ERROR INITIALIZING HARD DISK CONTROLLER

Cannot initialize controller. Make sure the cord is correctly and firmly installed in the bus. Be sure the correct hard drive type is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.

FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT

Cannot find or initialize the floppy drive controller. make sure the controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE.

KEYBOARD ERROR OR NO KEYBOARD PRESENT

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

Memory Address Error at ...

Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

Memory parity Error at ...

Indicates a memory parity error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

Memory Verify Error at ...

Indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.

OFFENDING ADDRESS NOT FOUND

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

OFFENDING SEGMENT:

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem has been isolated.

PRESS A KEY TO REBOOT

This will be displayed at the bottom screen when an error occurs that requires you to reboot. Press any key and the system will reboot.

PRESS F1 TO DISABLE NMI, F2 TO REBOOT

When BIOS detects a Non-maskable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system with the NMI enabled.

RAM PARITY ERROR - CHECKING FOR SEGMENT ...

Indicates a parity error in Random Access Memory.

SYSTEM HALTED, (CTRL-ALT-DEL) TO REBOOT ...

Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL.

FLOPPY DISK(S) fail (80) ®   Unable to reset floppy subsystem.

FLOPPY DISK(S) fail (40) ®   Floppy Type dismatch.

Hard Disk(s) fail (80)   ®   HDD reset failed

Hard Disk(s) fail (40) ® **HDD controller diagnostics failed.**

Hard Disk(s) fail (20) ® **HDD initialization error.**

Hard Disk(s) fail (10) ® **Unable to recalibrate fixed disk.**

Hard Disk(s) fail (08) ® **Sector Verify failed.**

Keyboard is locked out - Unlock the key.

BIOS detect the keyboard is locked. P17 of keyboard controller is pulled low.

Keyboard error or no keyboard present.

Cannot initialize the keyboard. Make sure that the keyboard is attached correctly and no keys are being pressed during the boot.

Manufacturing POST loop.

System will repeat POST procedure infinitely while the P15 of keyboard controller is pull low. This is also used for M/B burn in test.

BIOS ROM checksum error - System halted.
The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail..

BIOS reports the memory test fail if the onboard memory is tested error.

NOTES

Appendix B: Award BIOS POST Codes

This section lists the POST (Power On Self Testing) Codes for the Award BIOS.

POST (hex)	Description
CFh	Test CMOS R/W functionality.
C0h	Early chipset initialization: -Disable shadow RAM -Disable L2 cache (socket 7 or below) -Program basic chipset registers
C1h	Detect memory -Auto-detection of DRAM size, type and ECC. -Auto-detection of L2 cache (socket 7 or below)
C3h	Expand compressed BIOS code to DRAM
C5h	Call chipset hook to copy BIOS back to E000 & F000 shadow RAM.
0h1	Expand the Xgroup codes locating in physical address 1000:0
02h	Reserved
03h	Initial Superio_Early_Init switch.
04h	Reserved
05h	1. Blank out screen 2. Clear CMOS error flag
06h	Reserved
07h	1. Clear 8042 interface 2. Initialize 8042 self-test
08h	1. Test special keyboard controller for Winbond 977 series Super I/O chips. 2. Enable keyboard interface.
09h	Reserved
0Ah	● Disable PS/2 mouse interface (optional). ● Auto detect ports for keyboard & mouse followed by a port & interface swap (optional). ● Reset keyboard for Winbond 977 series Super I/O chips.
0Bh	Reserved
0Ch	Reserved
0Dh	Reserved
0Eh	Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker.

Debuggig LED Encoding

Post Code	Encoded LED	Task
C1h	001b	Memory Detection
05h	010b	BIOS Shadowing
07h	011b	KBC Initialization
0Eh	100b	Shadow RAM test
14h	101b	Chipset defaults loaded
26h	110b	Clock generator configured
2Bh	111b	Video initialization
52h	000b	Just clear LEDs

POST (hex)   **Description**

POST (hex)	Description
0Fh	Reserved
10h	Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD & DMI support.
11h	Reserved
12h	Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.
13h	Reserved
14h	Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers.
15h	Reserved
16h	Initial Early_Init_Onboard_Generator switch.
17h	Reserved
18h	Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686).
19h	Reserved
1Ah	Reserved
1Bh	Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR.
1Ch	Reserved
1Dh	Initial EARLY_PM_INIT switch.
1Eh	Reserved
1Fh	Load keyboard matrix (notebook platform)
20h	Reserved
21h	HPM initialization (notebook platform)
22h	Reserved
23h	1. Check validity of RTC value: e.g. a value of 5Ah is an invalid value for RTC minute. 2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead. 3. Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information. 4. Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots. 5. Early PCI initialization: -Enumerate PCI bus number -Assign memory & I/O resource -Search for a valid VGA device & VGA BIOS, and put it into C000:0.
24h	Reserved
25h	Reserved
26h	Reserved
27h	Initialize INT 09 buffer
28h	Reserved
29h	● Program CPU internal MTRR (P6 & PII) for 0-640K memory address. ● Initialize the APIC for Pentium class CPU. ● Program early chipset according to CMOS setup. Example: onboard IDE controller. ● Measure CPU speed. ● Invoke video BIOS.
2Ah	Reserved
2Bh	Reserved
2Ch	Reserved

POST (hex)	Description
2Dh	1. Initialize multi-language 2. Put information on screen display, including Award title, CPU type, CPU speed ….
2Eh	Reserved
2Fh	Reserved
30h	Reserved
31h	Reserved
32h	Reserved
33h	Reset keyboard except Winbond 977 series Super I/O chips.
34h	Reserved
35h	Reserved
36h	Reserved
37h	Reserved
38h	Reserved
39h	Reserved
3Ah	Reserved
3Bh	Reserved
3Ch	Test 8254
3Dh	Reserved
3Eh	Test 8259 interrupt mask bits for channel 1.
3Fh	Reserved
40h	Test 8259 interrupt mask bits for channel 2.
41h	Reserved
42h	Reserved
43h	Test 8259 functionality.
44h	Reserved
45h	Reserved
46h	Reserved
47h	Initialize EISA slot
48h	Reserved
49h	1. Calculate total memory by testing the last double word of each 64K page. 2. Program writes allocation for AMD K5 CPU.
4Ah	Reserved
4Bh	Reserved
4Ch	Reserved
4Dh	Reserved
4Eh	1. Program MTRR of M1 CPU 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range. 3. Initialize the APIC for P6 class CPU. 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.
4Fh	Reserved
50h	Initialize USB
51h	Reserved
52h	Test all memory (clear all extended memory to 0)
53h	Reserved
54h	Reserved
55h	Display number of processors (multi-processor platform)
56h	Reserved
57h	1. Display PnP logo 2. Early ISA PnP initialization -Assign CSN to every ISA PnP device.

POST (hex)   **Description**

POST (hex)	Description
58h	Reserved
59h	Initialize the combined Trend Anti-Virus code.
5Ah	Reserved
5Bh	(Optional Feature) Show message for entering AWDFLASH.EXE from FDD (optional)
5Ch	Reserved
5Dh	1. Initialize Init_Onboard_Super_IO switch. 2. Initialize Init_Onboard_AUDIO switch.
5Eh	Reserved
5Fh	Reserved
60h	Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility.
61h	Reserved
62h	Reserved
63h	Reserved
64h	Reserved
65h	Initialize PS/2 Mouse
66h	Reserved
67h	Prepare memory size information for function call: INT 15h ax=E820h
68h	Reserved
69h	Turn on L2 cache
6Ah	Reserved
6Bh	Program chipset registers according to items described in Setup & Auto-configuration table.
6Ch	Reserved
6Dh	1. Assign resources to all ISA PnP devices. 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO".
6Eh	Reserved
6Fh	1. Initialize floppy controller 2. Set up floppy related fields in 40:hardware.
70h	Reserved
71h	Reserved
72h	Reserved
73h	(Optional Feature) Enter AWDFLASH.EXE if : -AWDFLASH is found in floppy drive. -ALT+F2 is pressed
74h	Reserved
75h	Detect & install all IDE devices: HDD, LS120, ZIP, CDROM…..
76h	Reserved
77h	Detect serial ports & parallel ports.
78h	Reserved
79h	Reserved
7Ah	Detect & install co-processor
7Bh	Reserved
7Ch	Reserved
7Dh	Reserved
7Eh	Reserved
7Fh	1. Switch back to text mode if full screen logo is supported. -If errors occur, report errors & wait for keys -If no errors occur or F1 key is pressed to continue: ◆Clear EPA or customization logo.

POST (hex)   **Description**

POST (hex)	Description
80h	Reserved
81h	Reserved
82h	1. Call chipset power management hook. 2. Recover the text font used by EPA logo (not for full screen logo) 3. If password is set, ask for password.
83h	Save all data in stack back to CMOS
84h	Initialize ISA PnP boot devices
85h	1. USB final Initialization 2. NET PC: Build SYSID structure 3. Switch screen back to text mode 4. Set up ACPI table at top of memory. 5. Invoke ISA adapter ROMs 6. Assign IRQs to PCI devices 7. Initialize APM 8. Clear noise of IRQs.
86h	Reserved
87h	Reserved
88h	Reserved
89h	Reserved
90h	Reserved
91h	Reserved
92h	Reserved
93h	Read HDD boot sector information for Trend Anti-Virus code
94h	1. Enable L2 cache 2. Program boot up speed 3. Chipset final initialization. 4. Power management final initialization 5. Clear screen & display summary table 6. Program K6 write allocation 7. Program P6 class write combining
95h	1. Program daylight saving 2. Update keyboard LED & typematic rate
96h	1. Build MP table 2. Build & update ESCD 3. Set CMOS century to 20h or 19h 4. Load CMOS time into DOS timer tick 5. Build MSIRQ routing table.
FFh	Boot attempt (INT 19h)

NOTES

Appendix C: Award BIOS Error Beep Codes

This section lists the Award BIOS Error Beep Codes.

Beep Code	`Error Message` Description
1 short beep	`System boot.`
2 short beeps	Incorrect CMOS setting.
1 long + 1 short	DRAM error.
1 long + 2 short	VGA error.
1 long + 3 short	Keyboard error.
1 long + 9 short	ROM error.
Long beeps	Memory module error.
High beeps	Power error.

NOTES

Appendix D

System Specifications

Processors

Single or dual Intel Pentium® III FCPGA 500 MHz to 1.40 GHz and faster processors with a 512K L2 cache and single or dual low power Pentium® III processors at front side bus speeds of 100 and 133 MHz.

Memory Capacity

4 DIMM slots to support a maximum of 4 GB PC266/200 DDR-RAM

DIMM Sizes

128 MB / 256 MB / 512 MB / 1 GB DDR-RAM PC1600/2100 modules supported

SCSI Controller

Adaptec AIC-7892 for single channel Ultra160 SCSI onboard P3TDDR

SCSI SCA Backplane Controller

QLogic GEM318 controller for SAF-TE compliance (Optional)

SCSI Drive Bays

Two (2) drive bays to house two (2) standard **1" 80-pin** SCA SCSI drives

Peripheral Bays

One (1) 3.5" floppy drive
One (1) slim CD-ROM drive
Two (2) 3.5 x 1" drive bays (for SCSI drives)

PCI Expansion Slots

One (1) 32-bit, 33 MHz, 5V PCI slot.

Power Supply

Type: 1 x 250W with +3.3V, +5V, +12V, -5V and -12V main DC outputs and a 5V standby output.
Input Voltage: 100-240VAC (w/ ± 10% tolerance (units are auto-switching capable)
Fans: Two 4-cm ball bearing fans

Operating Environment

Operating Temperature Range: 0 to 35 degrees C
Humidity Range: 5-90%, non-condensing
Safety Regulations: UL 1950, CUL, TUV
EMI: FCC part 15, CISPR 22 (EN 55022)

Cooling Fans

System: One (1) 10-cm ball bearing blower fan
   Optional: One (1) 4-cm ball bearing fan
Onboard Fan Headers: Two (2) CPU, two (2) chassis and two (2) overheat fan headers; max. current = .035 amps/ea. or 1.2 amps/set of four

Form Factor: P3TDDR motherboard: Full ATX
                SC810 chassis: 1U rackmount

Operating Systems Supported: Windows NT, Windows 2000, Solaris, Netware, SCO UNIX and Linux

Dimensions: 16.7 x 1.7 x 22.7 in.; 425 x 44 x 560 mm (W x H x D)

Weight: Net: Full System: ~26 lbs. (11.8 kg.)
         Gross: Full System: ~32 lbs. (14.5 kg.)

Regulations: FCC Class B, CE, UL, TUV